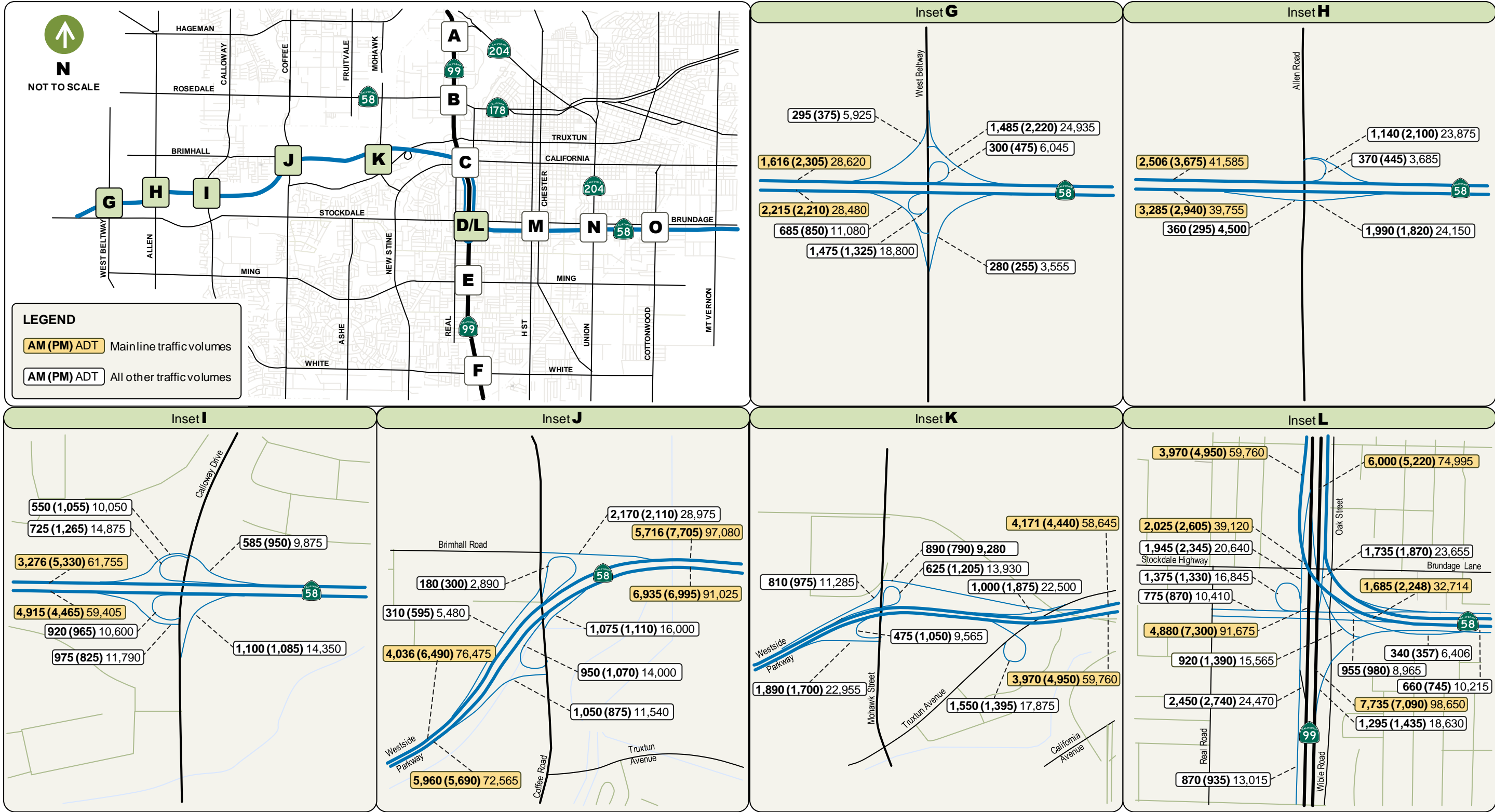


Figure 3-21: Difference between Year 2038 Alternative C and the No-Build Alternative Daily Traffic Volumes



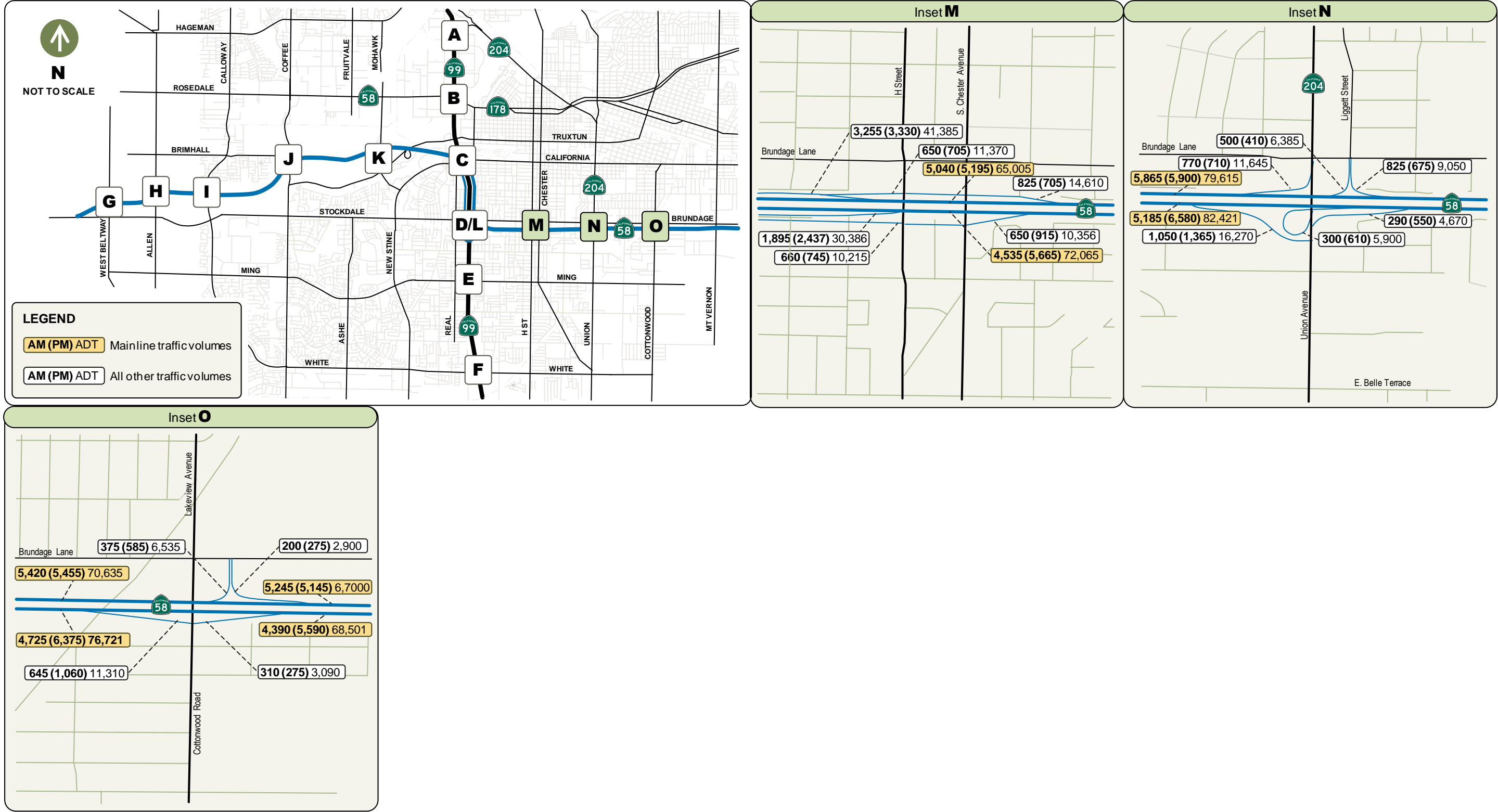
Source: Parsons

Figure 3-22:  
Year 2038 Peak Hour and Daily Freeway  
Volumes—Alternative C  
(1 of 3)



Source: Parsons

Figure 3-22:  
Year 2038 Peak Hour and Daily Freeway  
Volumes—Alternative C  
(2 of 3)



Source: Parsons

**Figure 3-22:**  
**Year 2038 Peak Hour and Daily Freeway**  
**Volumes—Alternative C**  
(3 of 3)

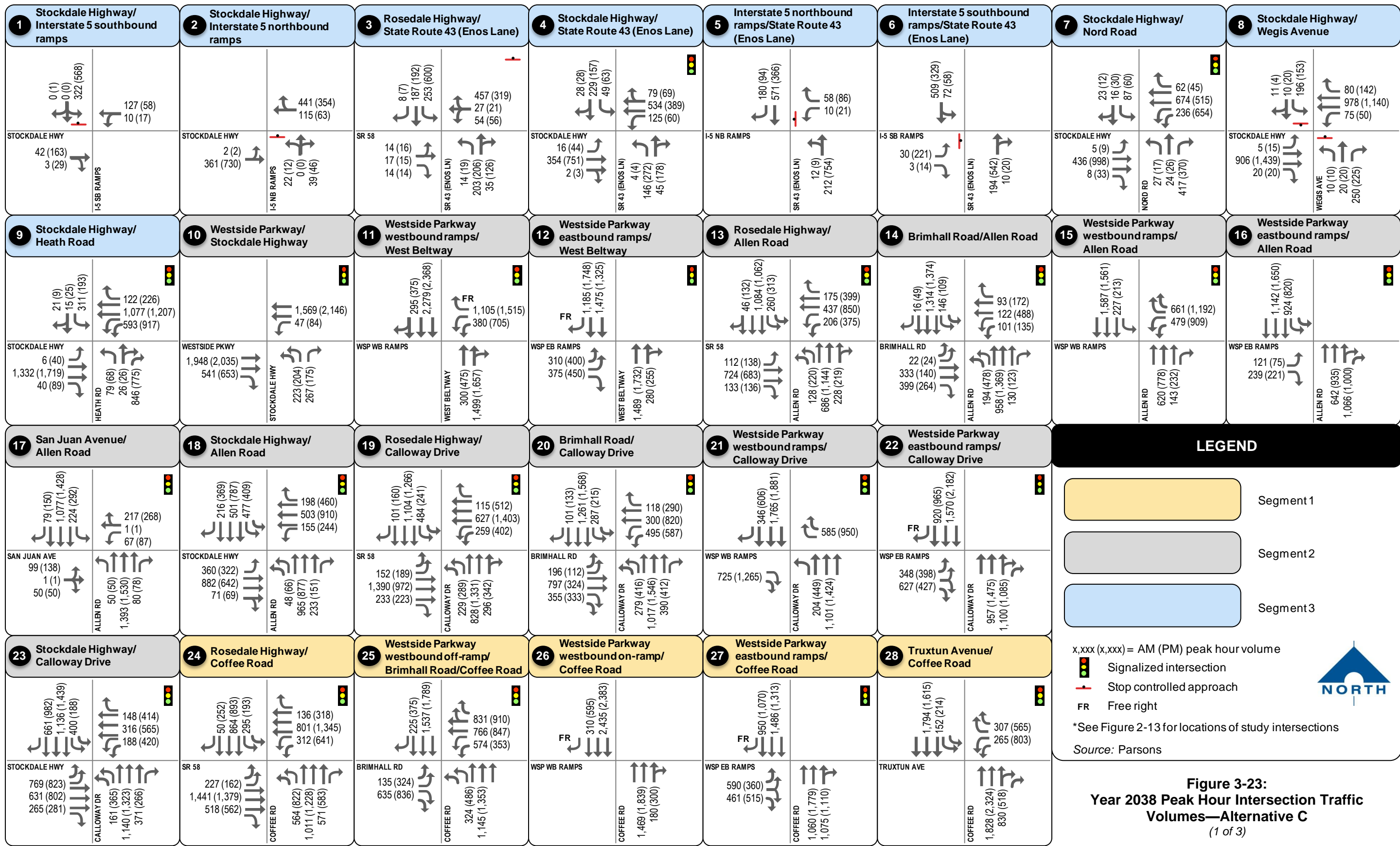
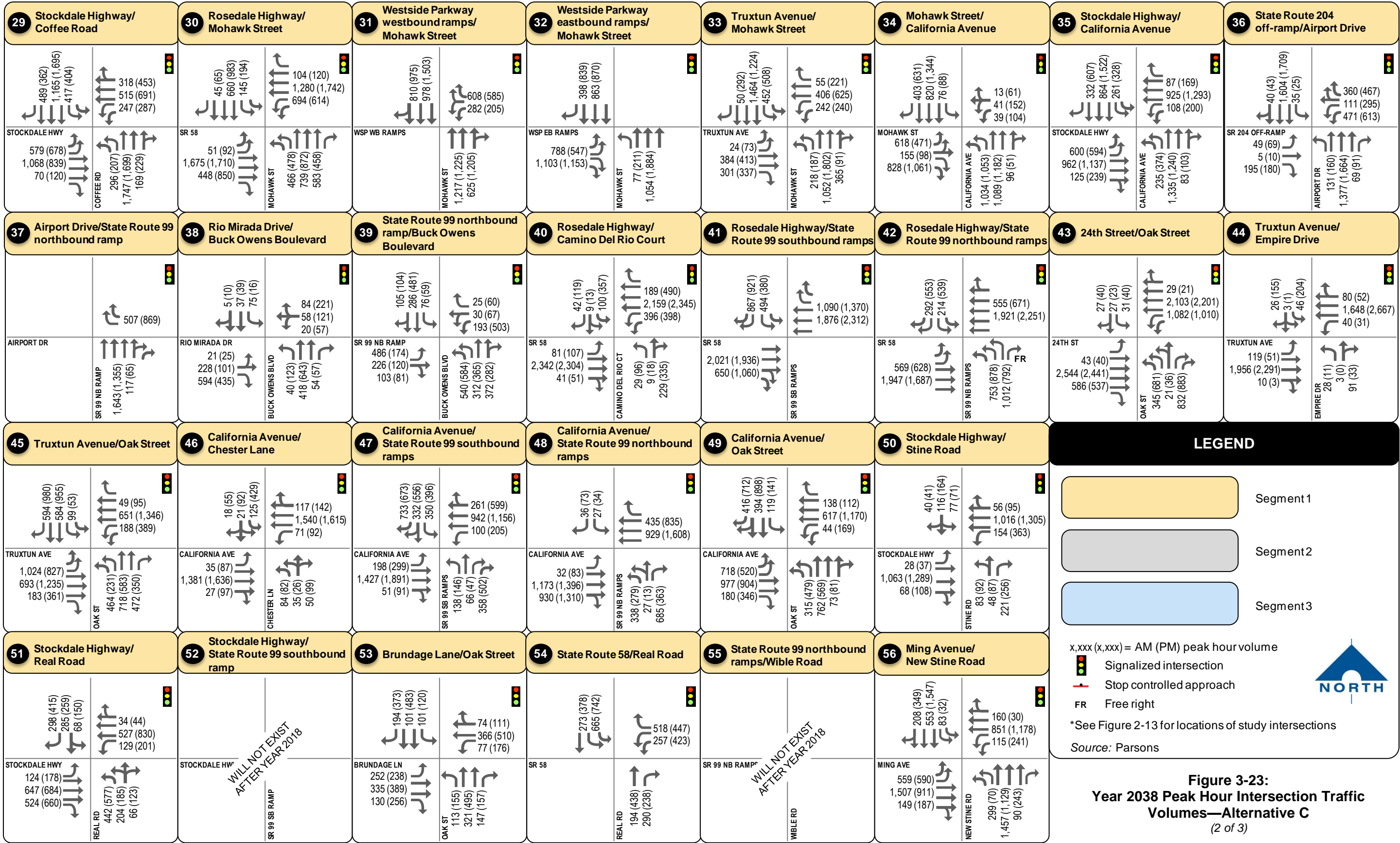


Figure 3-23:  
Year 2038 Peak Hour Intersection Traffic  
Volumes—Alternative C  
(1 of 3)



**Figure 3-23:**  
**Year 2038 Peak Hour Intersection Traffic**  
**Volumes—Alternative C**  
(2 of 3)

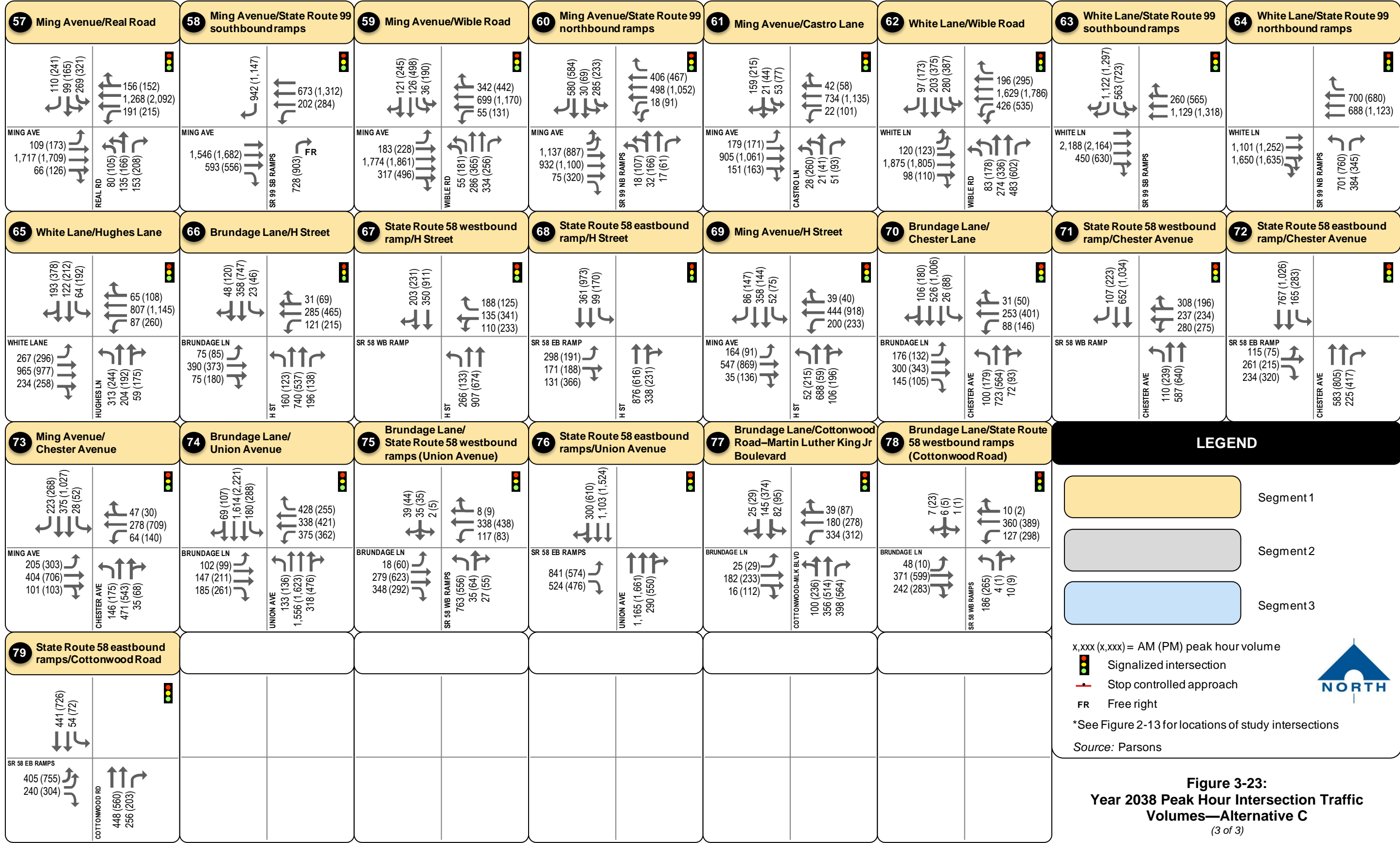
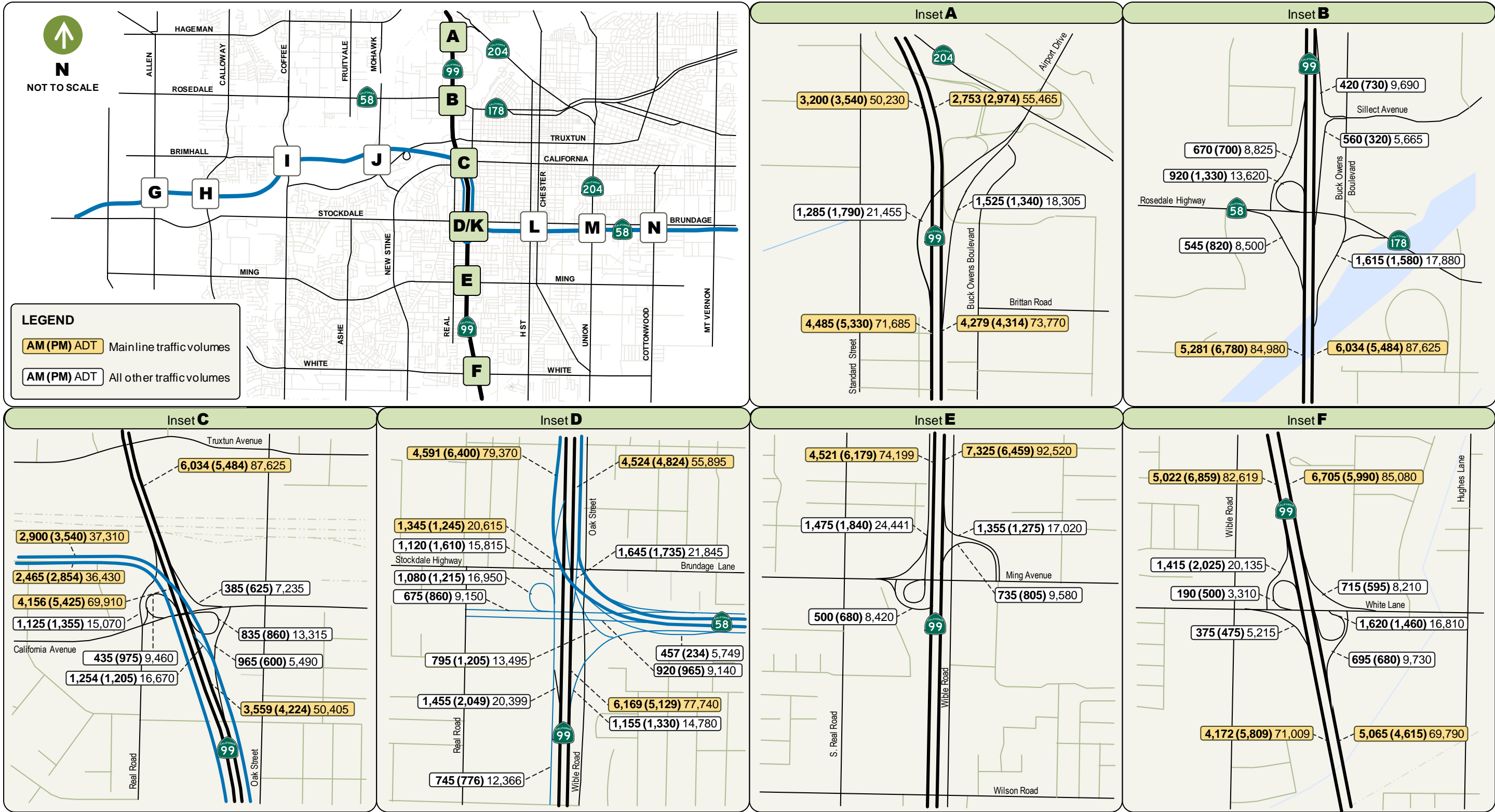
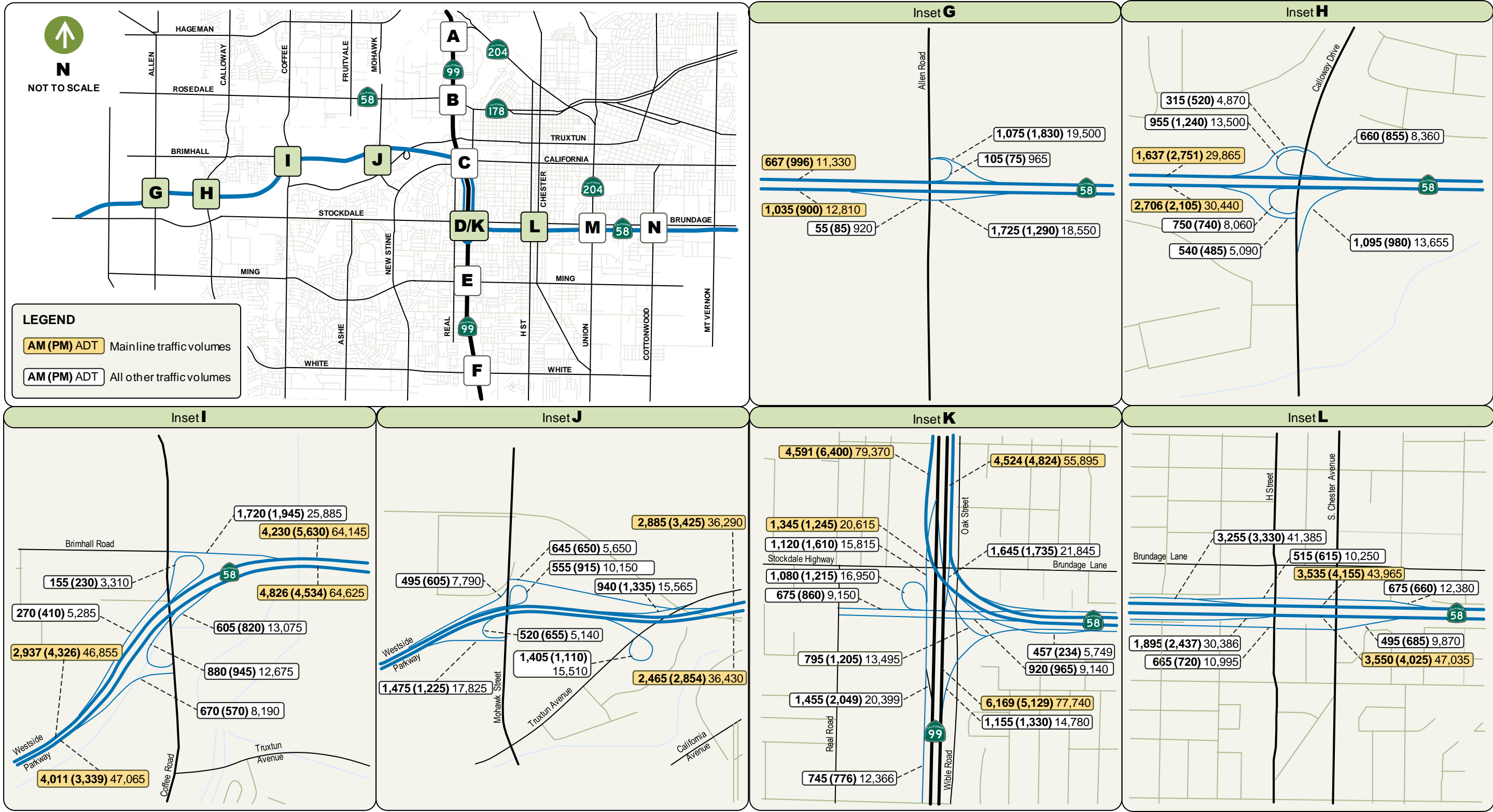


Figure 3-23:  
Year 2038 Peak Hour Intersection Traffic  
Volumes—Alternative C  
(3 of 3)



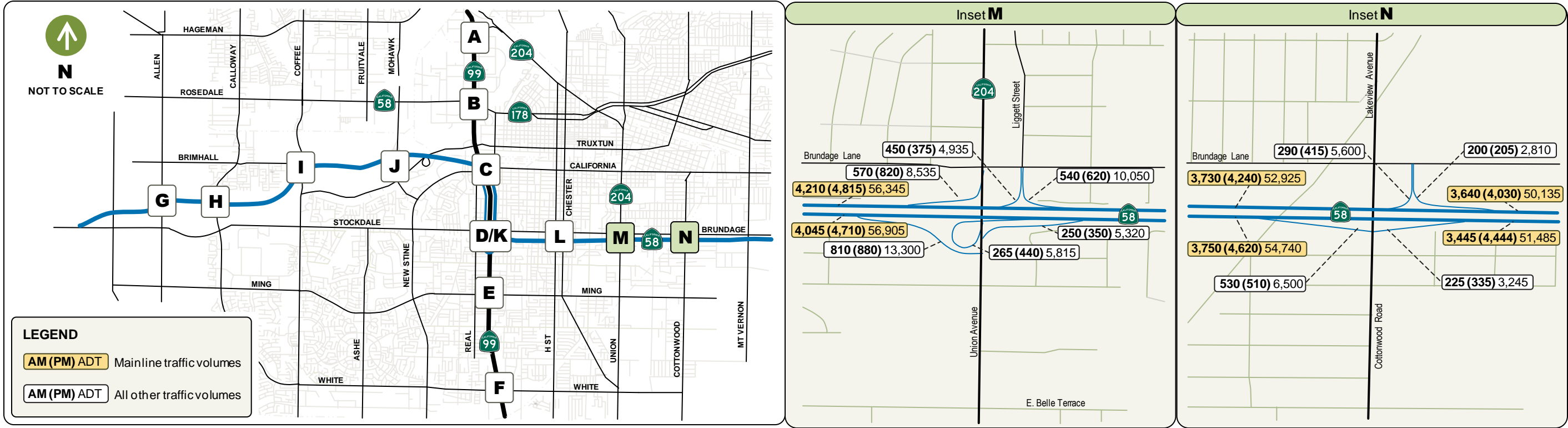
Source: Parsons

Figure 3-24:  
Year 2018 Peak Hour and Daily Freeway  
Volumes—Alternative C  
(1 of 3)



Source: Parsons

Figure 3-24:  
Year 2018 Peak Hour and Daily Freeway  
Volumes—Alternative C  
(2 of 3)



Source: Parsons

Figure 3-24:  
Year 2018 Peak Hour and Daily Freeway  
Volumes—Alternative C  
(3 of 3)

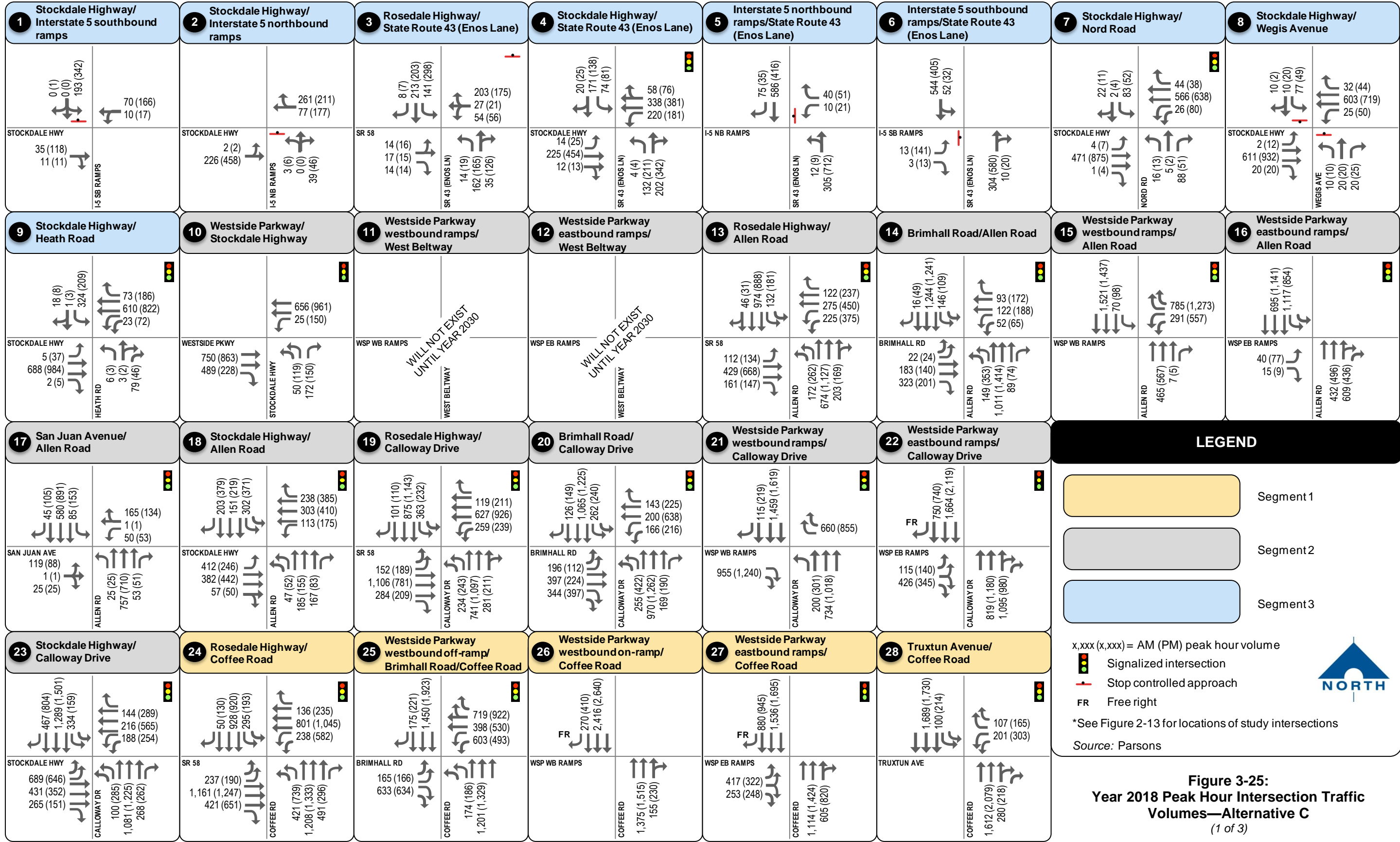
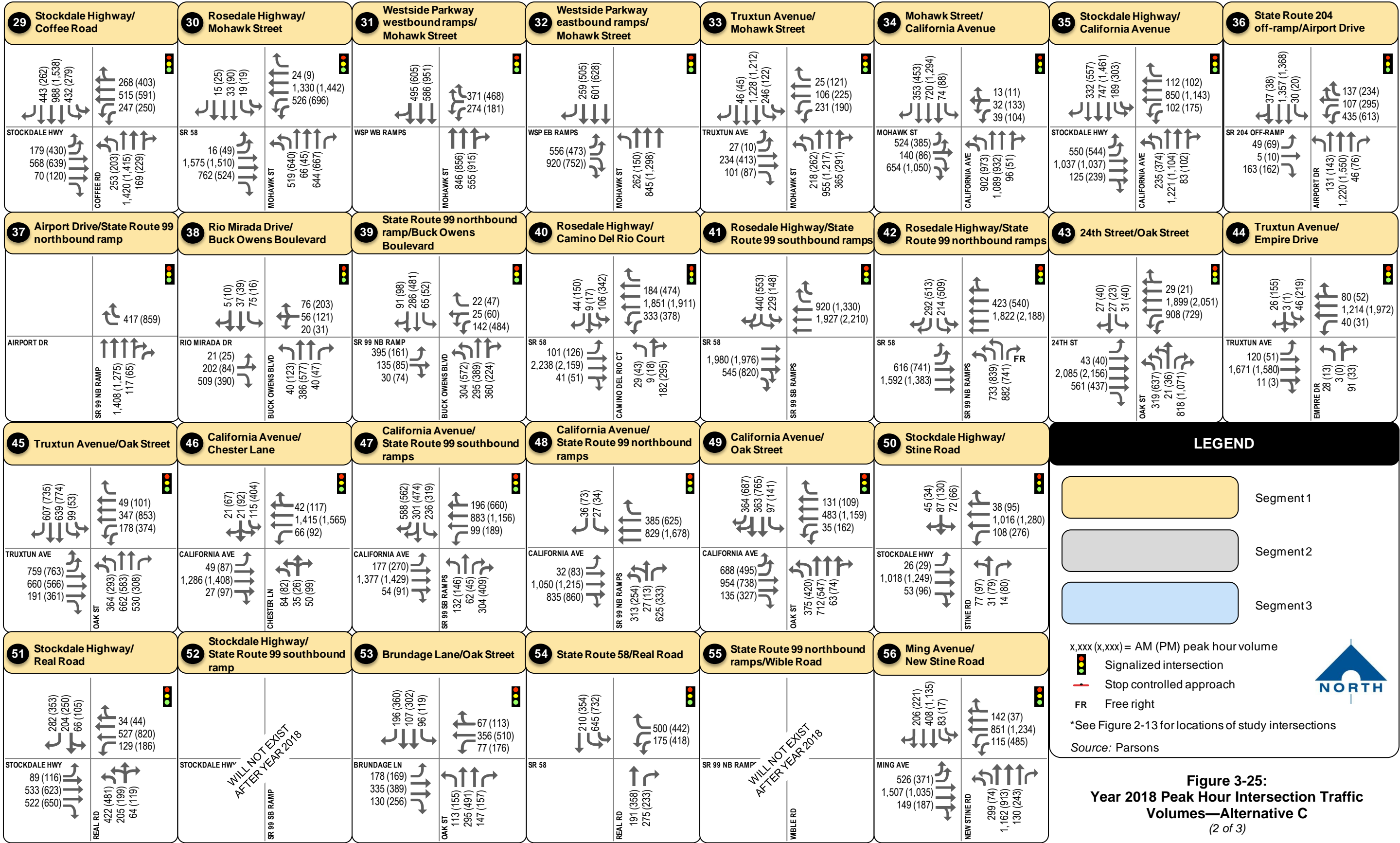
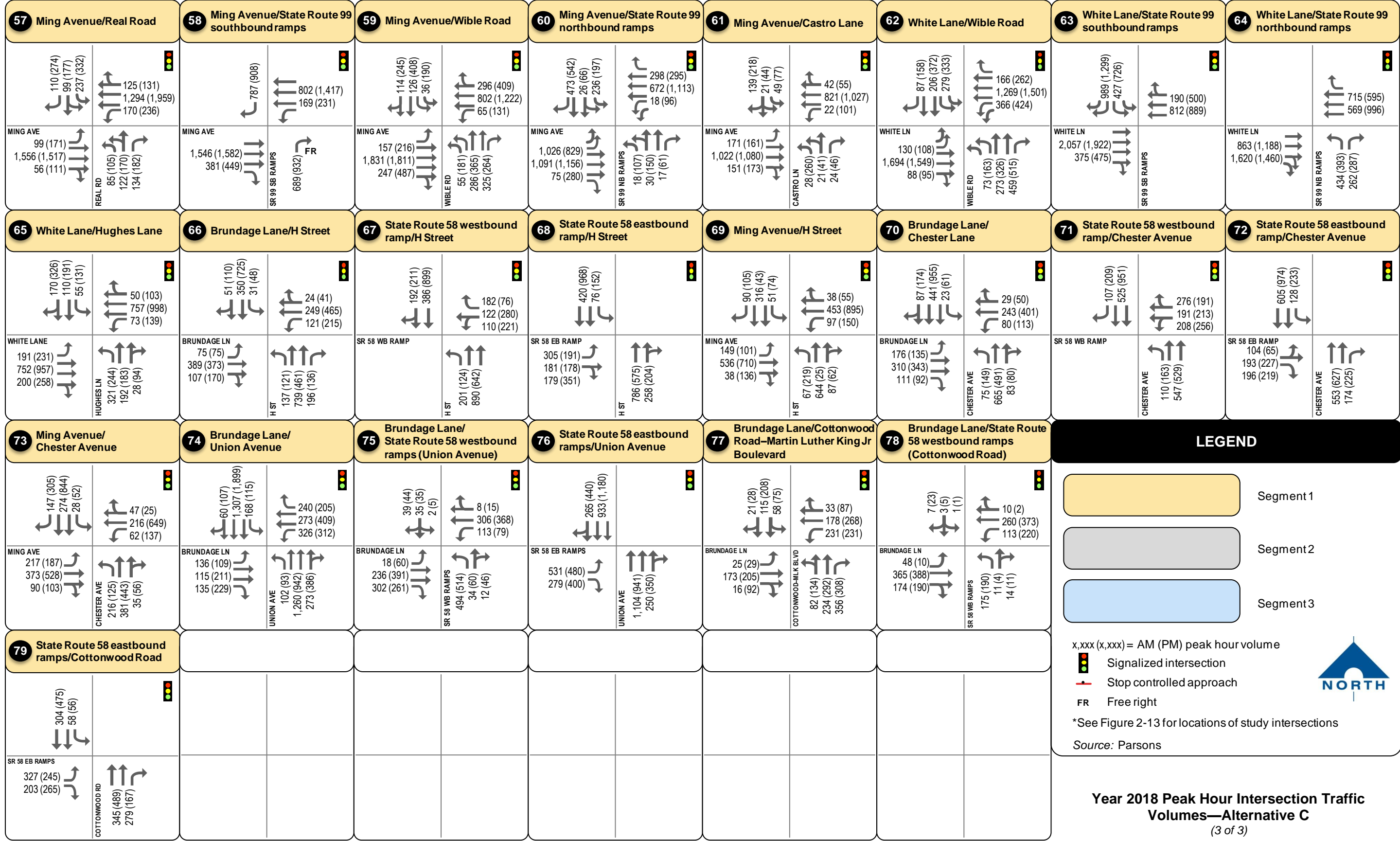


Figure 3-25:  
Year 2018 Peak Hour Intersection Traffic  
Volumes—Alternative C  
(1 of 3)



**Figure 3-25:**  
**Year 2018 Peak Hour Intersection Traffic**  
**Volumes—Alternative C**  
(2 of 3)



Year 2018 Peak Hour Intersection Traffic Volumes—Alternative C  
(3 of 3)

### ***Transportation Systems Management/Transit Alternative (Alternative M)***

Alternative M proposes to utilize transportation systems management strategies to improve capacity and potentially reduce demand on the east–west arterial links and selected north–south connections to facilitate regional and local east–west traffic.

Low-cost improvements include traffic signal optimization, intersection widening, and bus turnouts to reduce delay and increase the capacity along the following corridors:

- Hageman Road from Calloway Drive to State Route 99
- Rosedale Highway from Enos Lane (State Route 43) to State Route 99
- Truxtun Avenue from the Westside Parkway to Oak Street
- Stockdale Highway from Old River Road to Oak Street/Wible Road
- Ming Avenue from Old River Road to State Route 99
- Coffee Road from Stockdale Highway to Westside Parkway
- California Avenue from Stockdale Highway to Mohawk Street
- Mohawk Street from California Avenue to the Westside Parkway

These low-cost improvements are also assumed for the no-build alternative, and are therefore not specifically studied as a new component of the transportation system for alternative M.

To further increase capacity, higher cost improvements are proposed for Rosedale Highway. These include widening Rosedale Highway from Enos Lane (State Route 43) to State Route 99 and constructing grade separations at the following intersections along Rosedale Highway:

- Rosedale Highway/Allen Road
- Rosedale Highway/Coffee Road
- Rosedale Highway/Calloway Drive
- Rosedale Highway/Mohawk Street
- Rosedale Highway/San Joaquin Valley Railroad crossing

Additionally, improvements on State Route 99 to be considered include adding auxiliary lanes between State Route 58 and California Avenue or providing an additional (fifth) mainline lane to accommodate the increased north–south traffic demand.

Roadway operational improvements would include deploying intelligent transportation systems strategies to improve mobility and reduce fuel consumption and green house gas emissions.

This alternative would also include increasing transit service along Rosedale Highway and Stockdale Highway to reduce the overall vehicular demand in these east–west corridors and other potential travel demand management techniques. The transit improvements would primarily focus on an increase in frequency of service that would result in reduced auto demand. Finally, area-wide transportation demand management strategies would be considered to reduce

travel demand through establishing parking fees, encouraging carpool formation, and encouraging flextime for employees.

These improvements to transit service and implementation of travel demand management techniques are also assumed for the no-build alternative, and are therefore not specifically studied as a new component for alternative M.

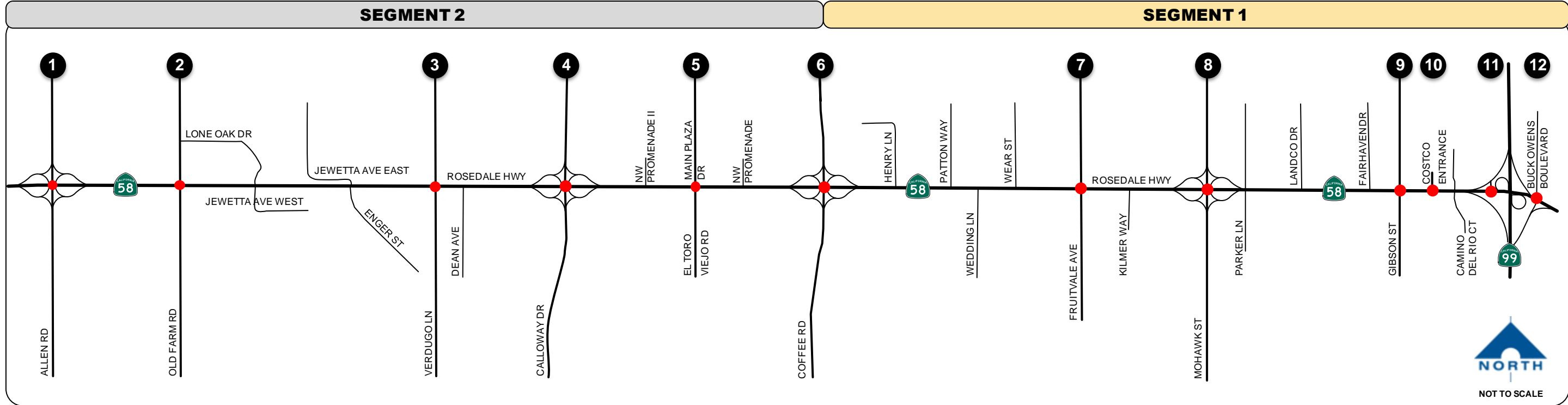
Figure 3-26 illustrates the future year forecasts of peak hour traffic volumes and lane geometry assumptions reported for the Rosedale Highway Widening Project.<sup>1</sup> This project assumes that the Centennial Corridor project build alternative A, B, or C is constructed. Figure 3-27 illustrates future year forecasts of peak hour traffic volumes and lane geometry assumptions for the no-build alternative. The lane geometry is the same as defined for the Rosedale Highway Widening project; however, traffic volumes are different as motorists select different route choices to traverse the roadway network, seeking to minimize travel times by avoiding congestion. Figure 3-28 illustrates future year forecasts of peak hour traffic volumes and lane geometry assumptions for the transportation systems management/transit alternative. For reference, alternative M would increase capacity and reduce delays along Rosedale Highway by constructing grade separations over major north–south arterial streets which cross Rosedale Highway between State Route 99 and Allen Road. In addition, the number of signalized intersections along Rosedale Highway would be decreased. Figure 3-28 indicates two lane geometry options for the transportation systems management/transit alternative—a six-lane option and an eight-lane option. These options are discussed at length in Chapter 4.

To provide an overall indication of the impact of upgrading Rosedale Highway (State Route 58 west) to a “super-arterial” between State Route 99 and Allen Road, a computer generated map is provided as Figure 3-29, which illustrates the difference between the 2038 transportation systems management/transit alternative and no-build daily traffic volumes, as assigned by the travel forecast model. The bandwidths illustrated in red depict roadways which receive additional volumes of traffic as a result of grade separating major north–south arterials crossing Rosedale Highway and reducing the number of signalized intersections along the facility. Roadways having bandwidths illustrated in blue indicate roads receiving less traffic as a result of improving State Route 58 west. The difference plot clearly indicates that the transportation systems management/transit alternative attracts more traffic volume to Rosedale Highway, while reducing traffic on parallel roadways.

The transportation systems management/transit alternative (alternative M) is not analyzed for year 2018 conditions; hence, no traffic volume forecasts are reported for that scenario.

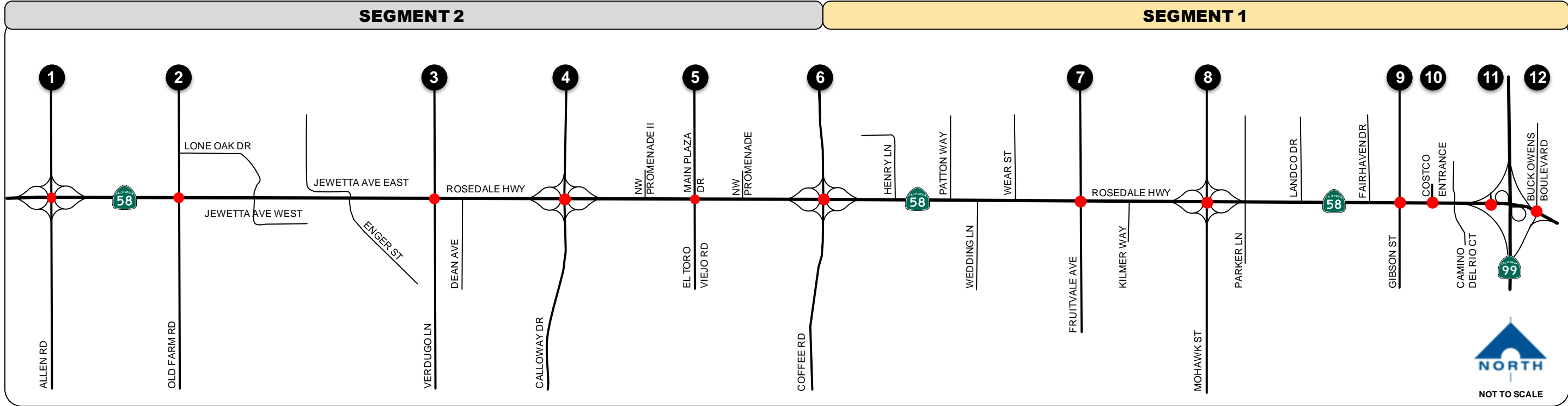
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<sup>1</sup> Projects 11 and 12 illustrated on Figure 3-4.



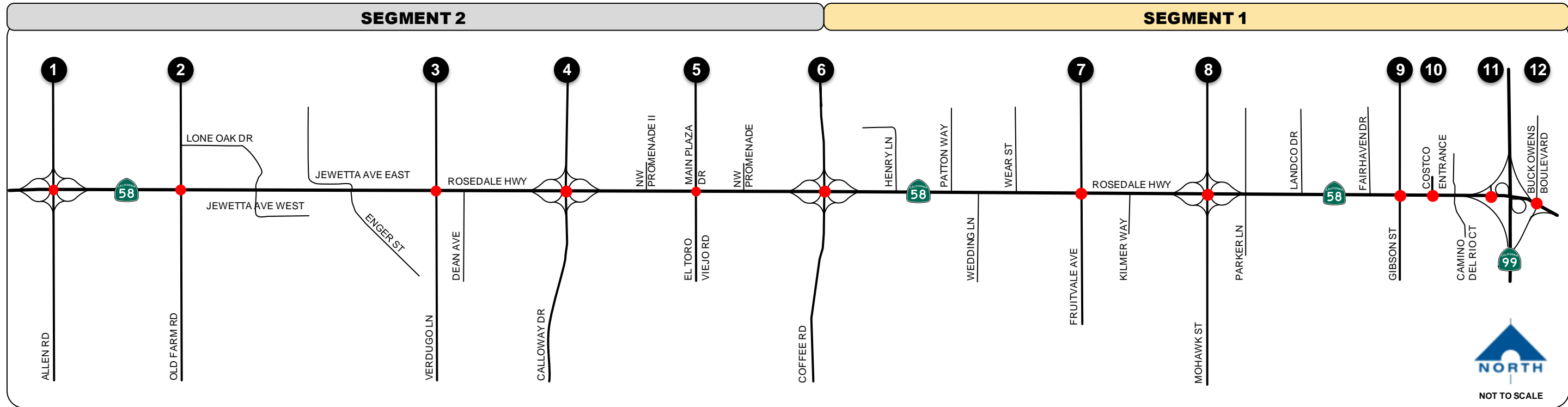
| 1  | 2  | 3  | 4   | 5   | 6  | LEGEND   |  |
|--|--|--|---|---|--|--|--|
| Rosedale Highway/<br>Allen Road  | Rosedale Highway/<br>Old Farm Road   | Rosedale Highway/<br>Verdugo Lane  | Rosedale Highway/<br>Calloway Drive   | Rosedale Highway/Main<br>Plaza Dr/El Toro Viejo Rd  | Rosedale Highway/<br>Coffee Road   | <div>Segment 1</div> <div>Segment 2</div> <p>XXX (XXX) = AM (PM) peak hour volumes</p> |  |
| <div><div><div>SR 58</div><div>55 (40)<br/>1,200 (1,055)<br/>265 (340)</div><div>180 (195)<br/>620 (940)<br/>205 (255)</div></div><div><div>Allen Rd</div><div>180 (605)<br/>510 (530)<br/>230 (425)<br/>15 (25)</div><div>245 (245)<br/>675 (970)<br/>250 (175)</div></div></div> | <div><div>SR 58</div><div>NOT AVAILABLE</div><div>OLD FARM RD</div></div>  | <div><div>SR 58</div><div>NOT AVAILABLE</div><div>VERDUGO LN</div></div> | <div><div><div>SR 58</div><div>120 (120)<br/>825 (985)<br/>480 (355)</div><div>10 (60)<br/>155 (140)<br/>1,570 (1,290)<br/>275 (195)</div></div><div><div>Calloway Dr</div><div>145 (295)<br/>910 (1,730)<br/>270 (475)</div><div>175 (205)<br/>460 (755)<br/>315 (355)</div></div></div> | <div><div>SR 58</div><div>NOT AVAILABLE</div><div>MAIN PLAZA DR<br/>EL TORO VIEJO RD</div></div>  | <div><div><div>SR 58</div><div>50 (180)<br/>1,165 (1,015)<br/>355 (200)</div><div>235 (165)<br/>1,620 (1,470)<br/>370 (735)</div></div><div><div>Coffee Rd</div><div>135 (220)<br/>1,155 (1,590)<br/>465 (855)</div><div>425 (890)<br/>1,170 (1,465)<br/>665 (560)</div></div></div> |  |  |
| 7  | 8  | 9  | 10  | 11  | 12   |  |  |
| Rosedale Highway/<br>Fruitvale Avenue  | Rosedale Highway/<br>Mohawk Street   | Rosedale Highway/<br>Gibson Street                                       | Rosedale Highway/<br>Costco entrance  | Rosedale Highway/<br>SR 99 southbound ramps   | Rosedale Highway/<br>SR 99 northbound ramps  |  |  |
| <div><div>SR 58</div><div>NOT AVAILABLE</div><div>FRUITVALE AVE</div></div>  | <div><div><div>SR 58</div><div>60 (100)<br/>555 (895)<br/>180 (215)</div><div>20 (50)<br/>90 (120)<br/>2,335 (1,925)<br/>425 (690)</div></div><div><div>Mohawk St</div><div>95 (175)<br/>1,560 (2,055)<br/>680 (915)<br/>10 (10)</div><div>610 (665)<br/>685 (850)<br/>520 (615)</div></div></div> | <div><div>SR 58</div><div>NOT AVAILABLE</div><div>GIBSON ST</div></div>  | <div><div>SR 58</div><div>NOT AVAILABLE</div><div>COSTCO ENTRANCE</div></div>   | <div><div><div>SR 58</div><div>705 (935)<br/>455 (385)</div><div>1,775 (2,320)<br/>920 (1,250)</div></div><div><div>SR 99 SB RAMP</div><div>1,165 (1,350)<br/>2,215 (2,575)</div></div></div> | <div><div><div>SR 58</div><div>290 (440)<br/>205 (465)</div><div>540 (725)<br/>1,690 (1,970)</div></div><div><div>SR 99 NB RAMP</div><div>550 (600)<br/>2,195 (2,360)</div><div>900 (1,125)<br/>1,100 (975)</div></div></div>  |  |  |

Figure 3-26:  
Year 2038 Peak Hour Intersection  
Traffic Volumes—Transportation  
Systems Management/Transit  
Alternative, Rosedale Traffic  
Operations Report



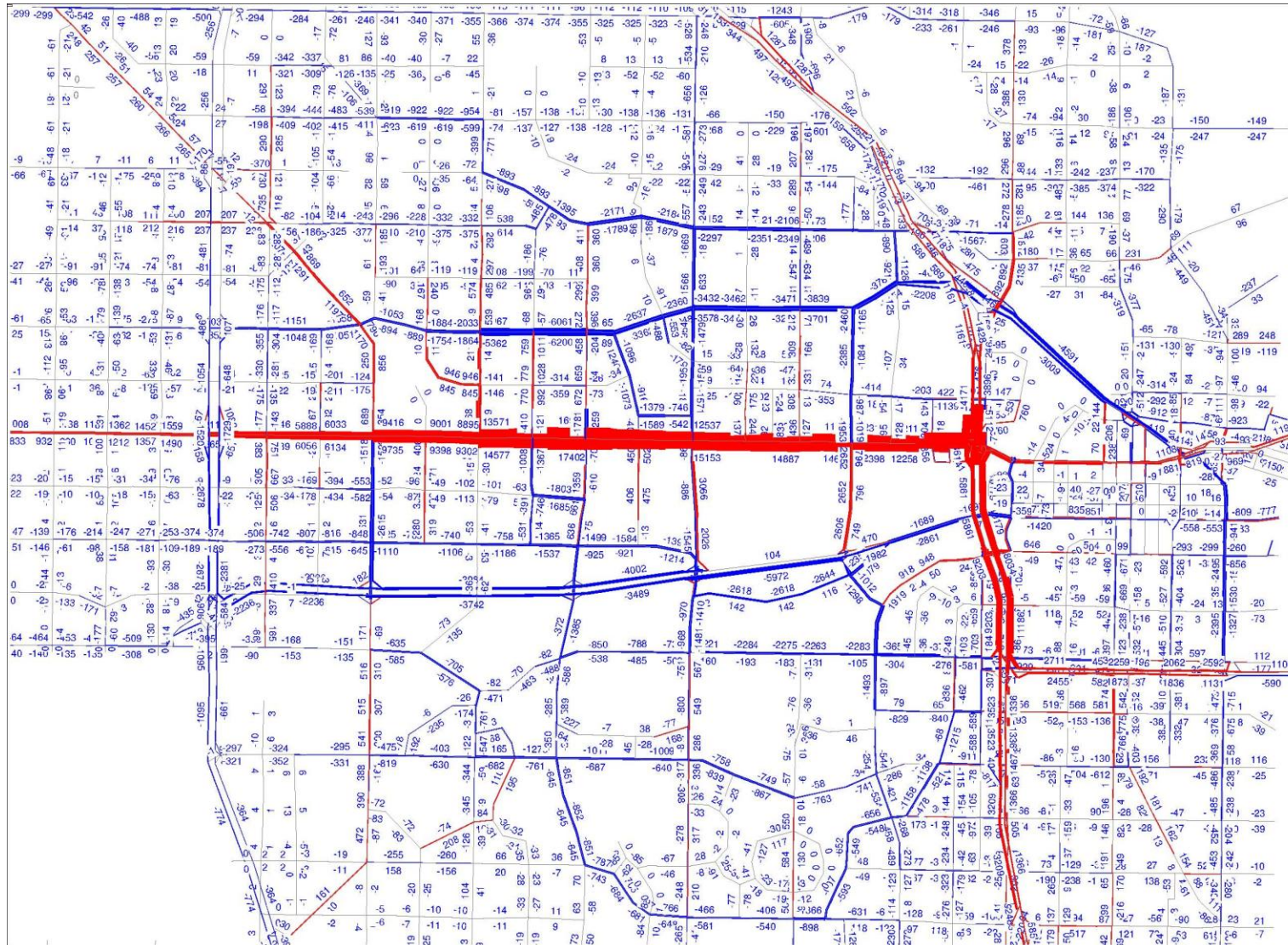
| 1   | 2  | 3  | 4  | 5  | 6  | LEGEND   |  |
|---|--|--|--|--|--|--|--|
| <div>Rosedale Highway/<br/>Allen Road</div> <div><div><div>46 (131)<br/>993 (956)<br/>303 (321)</div><div>173 (418)<br/>477 (850)<br/>214 (386)<br/>0 (0)</div></div><div><div>SR 58</div><div>112 (140)<br/>762 (706)<br/>98 (114)</div></div><div><div>ALLEN RD</div><div>113 (202)<br/>603 (1,082)<br/>228 (229)</div></div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>OLD FARM RD</div></div> | <div>Rosedale Highway/<br/>Old Farm Road</div> <div><div>NOT AVAILABLE</div><div>NOT AVAILABLE</div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>OLD FARM RD</div></div>   | <div>Rosedale Highway/<br/>Verdugo Lane</div> <div><div>NOT AVAILABLE</div><div>NOT AVAILABLE</div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>VERDUGO LN</div></div> | <div>Rosedale Highway/<br/>Calloway Drive</div> <div><div><div>101 (160)<br/>975 (1,035)<br/>305 (248)</div><div>115 (383)<br/>806 (1,630)<br/>259 (300)</div></div><div><div>SR 58</div><div>0 (0)<br/>152 (189)<br/>1,515 (1,144)<br/>246 (196)</div></div><div><div>CALLOWAY DR</div><div>182 (263)<br/>654 (1,026)<br/>281 (422)</div></div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>MAIN PLAZA DR/<br/>EL TORO VIEJO RD</div></div> | <div>Rosedale Highway/Main<br/>Plaza Dr/El Toro Viejo Rd</div> <div><div>NOT AVAILABLE</div><div>NOT AVAILABLE</div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>MAIN PLAZA DR/<br/>EL TORO VIEJO RD</div></div>   | <div>Rosedale Highway/<br/>Coffee Road</div> <div><div><div>50 (253)<br/>898 (1,142)<br/>295 (193)</div><div>136 (293)<br/>1,133 (1,826)<br/>333 (625)</div></div><div><div>SR 58</div><div>217 (341)<br/>1,816 (1,824)<br/>210 (317)</div></div><div><div>COFFEE RD</div><div>402 (410)<br/>925 (1,187)<br/>618 (494)</div></div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>COFFEE RD</div></div> | <div>Segment 1</div> <div>Segment 2</div> <div>XXX (XXX) = AM (PM) peak hour volumes</div> |  |
| 7   | 8  | 9  | 10   | 11   | 12   |  |  |
| <div>Rosedale Highway/<br/>Fruitvale Avenue</div> <div><div>NOT AVAILABLE</div><div>NOT AVAILABLE</div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>FRUITVALE AVE</div></div>   | <div>Rosedale Highway/<br/>Mohawk Street</div> <div><div><div>57 (88)<br/>740 (1,344)<br/>428 (216)</div><div>154 (173)<br/>433 (420)<br/>350 (294)</div></div><div><div>SR 58</div><div>0 (0)<br/>52 (136)<br/>2,349 (2,020)<br/>324 (485)</div></div><div><div>FRUITVALE AVE</div><div>154 (173)<br/>433 (420)<br/>350 (294)</div></div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>FRUITVALE AVE</div></div> | <div>Rosedale Highway/<br/>Gibson Street</div> <div><div>NOT AVAILABLE</div><div>NOT AVAILABLE</div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>GIBSON ST</div></div> | <div>Rosedale Highway/<br/>Costco entrance</div> <div><div>NOT AVAILABLE</div><div>NOT AVAILABLE</div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>COSTCO ENTRANCE</div></div>   | <div>Rosedale Highway/<br/>SR 99 southbound ramps</div> <div><div><div>729 (874)<br/>346 (221)</div><div>1,150 (1,3580)<br/>2,494 (2,618)</div></div><div><div>SR 58</div><div>NOT AVAILABLE</div><div>SR 99 SB RAMP</div></div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>SR 99 SB RAMP</div></div> | <div>Rosedale Highway/<br/>SR 99 northbound ramps</div> <div><div><div>370 (594)<br/>213 (556)</div><div>554 (701)<br/>2,145 (2,255)</div></div><div><div>SR 58</div><div>534 (606)<br/>1,637 (1,604)</div></div><div><div>SR 99 NB RAMP</div><div>1,128 (1,149)<br/>1,312 (941)</div></div></div> <div><div>SR 58</div><div>NOT AVAILABLE</div><div>SR 99 NB RAMP</div></div>                                   |  |  |

Figure 3-27:  
Year 2038 Peak Hour Intersection  
Traffic Volumes—Transportation  
Systems Management/Transit  
Alternative, No-Build Option



| 1  | 2   | 3   | 4  | 5   | 6  | LEGEND  |  |
|--|---|---|--|---|--|---|--|
| <b>Rosedale Highway/ Allen Road</b>  | <b>Rosedale Highway/ Old Farm Road</b>  | <b>Rosedale Highway/ Verdugo Lane</b>   | <b>Rosedale Highway/ Calloway Drive</b>  | <b>Rosedale Highway/Main Plaza Dr/EI Toro Viejo Rd</b>  | <b>Rosedale Highway/ Coffee Road</b>   | <div>Segment 1</div> <div>Segment 2</div> <p>XXX (XXX) = AM (PM) peak hour volumes</p> <p>➡ = 8-lane option</p> |  |
| <div><div><div>65 (40)</div><div>985 (845)</div><div>430 (482)</div></div><div><div>275 (700)</div><div>35 (45)</div><div>270 (510)</div><div>15 (25)</div></div><div><div>SR 58</div><div>175 (190)</div><div>0 (0)</div><div>255 (305)</div></div><div><div>ALLEN RD</div><div>265 (275)</div><div>550 (890)</div><div>340 (220)</div></div></div>                                   | <div><div><div>20 (20)</div><div>60 (190)</div><div>430 (250)</div></div><div><div>130 (160)</div><div>1,210 (1,860)</div><div>80 (200)</div><div>200 (240)</div></div><div><div>SR 58</div><div>0 (0)</div><div>20 (30)</div><div>1,630 (1,940)</div><div>30 (100)</div></div><div><div>OLD FARM RD</div><div>40 (60)</div><div>130 (150)</div><div>150 (140)</div></div></div>  | <div><div><div>100 (195)</div><div>170 (200)</div><div>390 (140)</div></div><div><div>90 (170)</div><div>1,240 (1,950)</div><div>100 (134)</div><div>100 (120)</div></div><div><div>SR 58</div><div>220 (220)</div><div>110 (220)</div><div>2,020 (2,010)</div><div>140 (50)</div></div><div><div>VERDUGO LN</div><div>80 (250)</div><div>120 (230)</div><div>50 (20)</div></div></div> | <div><div><div>140 (190)</div><div>485 (760)</div><div>685 (355)</div></div><div><div>260 (385)</div><div>0 (0)</div><div>405 (650)</div><div>80 (100)</div></div><div><div>SR 58</div><div>10 (60)</div><div>215 (140)</div><div>0 (0)</div><div>370 (240)</div></div><div><div>CALLOWAY DR</div><div>210 (250)</div><div>295 (530)</div><div>385 (470)</div></div></div> | <div><div><div>170 (415)</div><div>10 (20)</div><div>335 (500)</div></div><div><div>275 (440)</div><div>1,710 (2,645)</div><div>20 (70)</div><div>60 (80)</div></div><div><div>SR 58</div><div>110 (50)</div><div>319 (344)</div><div>2,540 (2,290)</div><div>40 (20)</div></div><div><div>MAIN PLAZA DR/ EL TORO VIEJO RD</div><div>30 (35)</div><div>10 (20)</div><div>25 (135)</div></div></div> | <div><div><div>100 (365)</div><div>790 (665)</div><div>525 (350)</div></div><div><div>240 (320)</div><div>150 (200)</div><div>300 (692)</div><div>355 (245)</div></div><div><div>SR 58</div><div>70 (60)</div><div>384 (220)</div><div>130 (90)</div><div>360 (585)</div></div><div><div>COFFEE RD</div><div>505 (930)</div><div>860 (980)</div><div>570 (290)</div></div></div> |   |  |
| <b>7</b>   | <b>8</b>  | <b>9</b>  | <b>10</b>  | <b>11</b>   | <b>12</b>  |   |  |
| <b>Rosedale Highway/ Fruitvale Avenue</b>  | <b>Rosedale Highway/ Mohawk Street</b>  | <b>Rosedale Highway/ Gibson Street</b>  | <b>Rosedale Highway/ Costcoentrance</b>  | <b>Rosedale Highway/ SR 99 southbound ramps</b>   | <b>Rosedale Highway/ SR 99 northbound ramps</b>  |   |  |
| <div><div><div>190 (155)</div><div>65 (25)</div><div>540 (440)</div></div><div><div>290 (575)</div><div>2,070 (2,540)</div><div>130 (215)</div><div>90 (15)</div></div><div><div>SR 58</div><div>220 (225)</div><div>150 (170)</div><div>2,940 (2,640)</div><div>40 (20)</div></div><div><div>FRUITVALE AVE</div><div>50 (100)</div><div>30 (65)</div><div>110 (250)</div></div></div> | <div><div><div>95 (185)</div><div>490 (725)</div><div>180 (240)</div></div><div><div>215 (225)</div><div>15 (10)</div><div>660 (935)</div><div>135 (290)</div></div><div><div>SR 58</div><div>20 (50)</div><div>180 (250)</div><div>60 (100)</div><div>605 (770)</div></div><div><div>FRUITVALE AVE</div><div>660 (765)</div><div>495 (670)</div><div>555 (630)</div></div></div> | <div><div><div>60 (105)</div><div>5 (15)</div><div>80 (180)</div></div><div><div>90 (40)</div><div>2,740 (3,010)</div><div>310 (310)</div></div><div><div>SR 58</div><div>280 (150)</div><div>150 (59)</div><div>3,010 (3,110)</div><div>210 (150)</div></div><div><div>GIBSON ST</div><div>80 (280)</div><div>15 (10)</div><div>20 (200)</div></div></div>                             | <div><div><div>25 (130)</div><div>10 (10)</div><div>110 (495)</div></div><div><div>130 (350)</div><div>3,070 (3,165)</div><div>40 (80)</div><div>160 (200)</div></div><div><div>SR 58</div><div>80 (130)</div><div>2,960 (3,270)</div><div>70 (90)</div></div><div><div>COSTCO ENTRANCE</div><div>45 (65)</div><div>10 (10)</div><div>30 (80)</div></div></div>            | <div><div><div>900 (1,060)</div><div>540 (450)</div></div><div><div>1,250 (1,420)</div><div>2,540 (2,830)</div></div><div><div>SR 58</div><div>2,040 (2,590)</div><div>1,250 (1,550)</div></div><div><div>SR 99 SB RAMPS</div></div></div>  | <div><div><div>0 (0)</div><div>560 (600)</div><div>200 (475)</div></div><div><div>30 (50)</div><div>600 (600)</div><div>2,100 (2,350)</div></div><div><div>SR 58</div><div>70 (100)</div><div>100 (130)</div><div>1,680 (1,910)</div><div>730 (900)</div></div><div><div>SR 99 NB RAMPS</div><div>1,050 (1,200)</div><div>1,150 (1,050)</div></div></div>                        |   |  |

Figure 3-28:  
Year 2038 Peak Hour Intersection Traffic  
Volumes—Transportation Systems  
Management/Transit Alternative,  
6- and 8-lane Options



Source: Parsons

**Figure 3-29: Difference between Year 2038 Transportation Systems Management/Transit Alternative and the No-Build Alternative Daily Traffic Volume Difference**

### 3.5 Future Year Truck Volumes

The Kern Council of Governments 2006 Regional Travel Demand Model forecasts three components of trucking activity.

- Internal–internal trips, having both an origin and destination within Kern County, are estimated based on employment type and employment distribution. Trip “production” rates are listed in Table 3-4, while trip “attraction” rates are listed in Table 3-5. The estimated rates are based on the number of employees per type of employment (basic, basic warehousing, retail high, retail medium, service office, and service commercial). The truck trip rates reported in these tables are based on axle types and are estimated as vehicle trips expressed as passenger car equivalents.
- Internal–external trips are based on the 2001 Caltrans Statewide Model. A separate trip purpose is provided for trucks; however, the model does not subdivide the truck trips by type of truck. Truck trips are expressed as passenger car equivalents.
- External–external vehicle trips are forecast using the 2001 Caltrans Statewide Model. These external–external vehicle trips are origin–destination based and are added to the internal Kern county trips prior to trip assignment, after factoring for each time-of-day period. As with the internal–external trips, there is no separate accounting of truck trips as they are included within the whole.

**Table 3-4. Internal Truck Trip Production Model**

| TYPE OF TRUCK   | BASIC PRODUCTION (BASIC_EMP) | BASIC WARE-HOUSING (BWOTH_EMP) | RETAIL HIGH (RHRET_EMP) | RETAIL MEDIUM (RMRET_EMP) | SERVICE OFFICE (SOSER_EMP) | SERVICE COMMERCIAL (SCSER_EMP) |
|-----------------|------------------------------|--------------------------------|-------------------------|---------------------------|----------------------------|--------------------------------|
| 2-axle          | 0.0554                       | 0.0610                         | 0.0464                  | 0.0464                    | 0.0610                     | 0.0610                         |
| 3-axle          | 0.0059                       | 0.0058                         | 0.0040                  | 0.0040                    | 0.0058                     | 0.0058                         |
| 4- or more axle | 0.0123                       | 0.0129                         | 0.0073                  | 0.0073                    | 0.0129                     | 0.0129                         |

**Table 3-5. Internal Truck Trip Attraction Model**

| TYPE OF TRUCK   | BASIC PRODUCTION (BASIC_EMP) | BASIC WARE-HOUSING (BWOTH_EMP) | RETAIL HIGH (RHRET_EMP) | RETAIL MEDIUM (RMRET_EMP) | SERVICE OFFICE (SOSER_EMP) | SERVICE COMMERCIAL (SCSER_EMP) |
|-----------------|------------------------------|--------------------------------|-------------------------|---------------------------|----------------------------|--------------------------------|
| 2-axle          | 0.0502                       | 0.0502                         | 0.0502                  | 0.0502                    | 0.0502                     | 0.0502                         |
| 3-axle          | 0.0051                       | 0.0051                         | 0.0051                  | 0.0051                    | 0.0051                     | 0.0051                         |
| 4- or more axle | 0.0188                       | 0.0188                         | 0.0188                  | 0.0188                    | 0.0188                     | 0.0188                         |

Given the limitations of the Kern COG 2006 Regional Travel Demand Model insofar as forecasting truck trips, Parsons used the San Joaquin Valley Truck Model to aid in establishing future year truck volumes. Parsons used the Kern COG model to generally confirm overall traffic volumes and travel patterns for the 2006 model validation year and the 2018 and 2038 forecast years under consideration.

The San Joaquin Valley Truck Model was developed by Cambridge Systematics using a combination of commodity-based and vehicle-based modeling techniques. The study area

included eight counties in the San Joaquin region: San Joaquin, Stanislaus, Merced, Fresno, Madera, Tulare, Kings and Kern. The truck model was developed using the Caltrans Statewide Model road network and zone structure.

The Caltrans Intermodal Transportation Management System (ITMS) commodity flow data was used to obtain detailed origin-destination information about commodity flows in to, out of, and through the valley counties as the basis for estimating intercity freight movements. County-level ITMS commodity flow truck trip data were then allocated to zip codes using employment data from 2000. The truck trips were allocated to zip codes based on matching the commodity codes in the truck trip table with the employment categories in the database for each code and each zip code. For outbound flows, one-to-one correspondences were made between commodity codes in the two databases. For inbound flows, tons were allocated based on employment in the consuming industries for each commodity.

The zip code-level trips were then allocated to the traffic analysis zones in the truck model. A truck trip table for “through” trips was created through visual observation of origin–destination combinations that crossed through the San Joaquin Valley. The truck tonnage for each of the relevant origin-destination combinations was collected from ITMS data. For each pair of relevant external regions, all of the truck tons in associated counties were summed. These tonnage values were converted into truck trips using the same payload matrix used for the other truck trip tables.

Trip production rates were developed primarily from the *Quick Response Freight Manual*, which provides trip rates based on national averages for medium and heavy trucks. Truck trip consumption rates were developed to estimate the relative number of trucks that are attracted to each zone in the valley. The tables for the State of California were then disaggregated to represent truck trip rates for medium and heavy truck trips.

The truck model is designed to generate truck volumes based on average daily traffic. The truck model output reports truck volumes based on truck classes defined as medium–heavy duty, which have a gross vehicle weight rating between 14,001 and 33,000 pounds; and heavy–heavy duty, with a gross vehicle weight rating of 33,001 pounds or more.

The ITMS database provides commodity flow forecasts for 2006, 2016, and 2026, which are derived using economic activity trends and forecasts from Global Insight, Inc., and county-level forecasts from the California Transportation Economics Unit. The first step in the process was the estimation of annual growth rates from ITMS forecasts for the time periods of (1) 2000 to 2006, (2) 2006 to 2016, and (3) 2016 to 2026. Year 2030 forecasts were then extrapolated based on the 2016 to 2026 annual average growth factors. As these growth factors were based on pre-2007 economic recession trends, the year 2030 forecasts were assumed for the 2038 Centennial Corridor project planning horizon. Table 3-6 shows the growth rates by commodity type, while Tables 3-7 and 3-8 show the total productions and consumptions in the non-ITMS trip generation procedure. Growth in population and employment leads to an increased need for commodities, which results in increased productions and consumptions. There is an overall growth of more than 70 percent for both productions and consumptions. This is in line with the growth in households and employment. Table 3-9 shows the growth in ITMS truck trips. ITMS trips grow at a higher rate than the local trips, because the valley is a big generator and consumer of goods for California and the rest of the nation.

**Table 3-6. Intermodal Transportation Systems Management Growth Rates by Commodity Type**

| STCC2* | COMMODITY DESCRIPTION                    | AVERAGE ANNUAL GROWTH FACTOR |           |           |
|--------|--|------------------------------|-----------|-----------|
|        |  | 2000–2006                    | 2006–2016 | 2016–2030 |
| 01     | Farm products                            | 1.0358                       | 1.0320    | 1.0262    |
| 08     | Forest products                          | 1.0405                       | 1.0333    | 1.0166    |
| 09     | Fresh fish and marine products           | 1.0612                       | 1.0504    | 1.0250    |
| 10     | Metallic ores                            | 1.0612                       | 1.0504    | 1.0250    |
| 11     | Coal                                     | 1.0917                       | 1.0519    | 1.0133    |
| 13     | Crude petroleum and natural gas          | 1.0456                       | 1.0376    | 1.0187    |
| 14     | Nonmetallic minerals                     | 1.0354                       | 1.0252    | 1.0173    |
| 20     | Food products                            | 1.0433                       | 1.0405    | 1.0328    |
| 21     | Tobacco products                         | 1.0457                       | 1.0501    | 1.0280    |
| 22     | Textile mill products                    | 1.0553                       | 1.0389    | 1.0257    |
| 23     | Apparel                                  | 1.0732                       | 1.0411    | 1.0282    |
| 24     | Lumber products                          | 1.0386                       | 1.0324    | 1.0246    |
| 25     | Furniture                                | 1.0527                       | 1.0470    | 1.0372    |
| 26     | Pulp and paper products                  | 1.0393                       | 1.0341    | 1.0250    |
| 27     | Printed matter                           | 1.0430                       | 1.0380    | 1.0297    |
| 28     | Chemical products                        | 1.0436                       | 1.0359    | 1.0298    |
| 29     | Petroleum and coal products              | 1.0451                       | 1.0343    | 1.0245    |
| 30     | Rubber and miscellaneous plastics        | 1.0535                       | 1.0426    | 1.0313    |
| 31     | Leather products                         | 1.0505                       | 1.0414    | 1.0273    |
| 32     | Clay, concrete, glass or stone products  | 1.0612                       | 1.0504    | 1.0250    |
| 33     | Primary metal products                   | 1.0498                       | 1.0390    | 1.0270    |
| 34     | Fabricated metal products                | 1.0443                       | 1.0371    | 1.0272    |
| 35     | Machinery                                | 1.0639                       | 1.0486    | 1.0402    |
| 36     | Electrical equipment                     | 1.0780                       | 1.0543    | 1.0430    |
| 37     | Transportation equipment                 | 1.0405                       | 1.0340    | 1.0290    |
| 38     | Instruments, photo and optical equipment | 1.0740                       | 1.0654    | 1.0525    |
| 39     | Miscellaneous manufacturing products     | 1.0528                       | 1.0437    | 1.0399    |
| 40     | Waste and scrap materials                | 1.0557                       | 1.0467    | 1.0275    |
| 50     | Secondary traffic                        | 1.0656                       | 1.0399    | 1.0285    |

\*Two-digit standard transportation commodity classification

Source: Cambridge Systematics, Inc., *San Joaquin Valley Goods Movement Study Truck Model Documentation***Table 3-7. Growth in Non-Intermodal Transportation Systems Management Productions**

| EMPLOYMENT CATEGORY     | PRODUCTION TRIPS 2000 |                | PRODUCTION TRIPS 2030 |                | GROWTH     |            |
|-------------------------|-----------------------|----------------|-----------------------|----------------|------------|------------|
|                         | MEDIUM                | HEAVY          | MEDIUM                | HEAVY          | MEDIUM     | HEAVY      |
| Agriculture             | 4,993                 | 7,622          | 8,797                 | 13,430         | 76%        | 76%        |
| Mining                  | 166                   | 364            | 346                   | 762            | 109%       | 109%       |
| Construction            | 262                   | 1,436          | 427                   | 2,336          | 63%        | 63%        |
| Manufacturing—products  | 28                    | 4,304          | 46                    | 7,125          | 66%        | 66%        |
| Manufacturing—equipment | 20                    | 1,127          | 33                    | 1,838          | 63%        | 63%        |
| TCU                     | 1,741                 | 6,656          | 2,895                 | 11,070         | 66%        | 66%        |
| Wholesale               | 610                   | 2,063          | 954                   | 3,228          | 56%        | 56%        |
| Retail trade            | 13,092                | 1,963          | 23,106                | 3,463          | 76%        | 76%        |
| FIRES                   | 1,557                 | 362            | 2,797                 | 650            | 80%        | 80%        |
| Education/government    | 1,576                 | 236            | 2,920                 | 437            | 85%        | 85%        |
| Households              | 34,572                | 74,420         | 60,721                | 130,712        | 76%        | 76%        |
| <b>Total</b>            | <b>58,616</b>         | <b>100,554</b> | <b>103,043</b>        | <b>175,049</b> | <b>76%</b> | <b>74%</b> |

Source: Cambridge Systematics, Inc., *San Joaquin Valley Goods Movement Study Truck Model Documentation*

**Table 3-8. Growth in Non-Intermodal Transportation Systems Management Consumptions**

| EMPLOYMENT CATEGORY     | 2000 CONSUMPTIONS |                | 2030 CONSUMPTIONS |                | GROWTH     |            |
|-------------------------|-------------------|----------------|-------------------|----------------|------------|------------|
|                         | MEDIUM            | HEAVY          | MEDIUM            | HEAVY          | MEDIUM     | HEAVY      |
| Agriculture             | 2,911             | 2,221          | 5,130             | 3,914          | 76%        | 76%        |
| Mining                  | 97                | 5,550          | 202               | 11,599         | 109%       | 109%       |
| Construction            | 190               | 1,919          | 308               | 3,120          | 63%        | 63%        |
| Manufacturing—products  | 29                | 3,539          | 48                | 5,859          | 66%        | 66%        |
| Manufacturing—equipment | 21                | 2,582          | 35                | 4,210          | 63%        | 63%        |
| TCU                     | 737               | 6,859          | 1,226             | 11,407         | 66%        | 66%        |
| Wholesale               | 62                | 498            | 97                | 780            | 56%        | 56%        |
| Retail trade            | 3,817             | 408            | 6,736             | 720            | 76%        | 76%        |
| FIRES                   | 9,045             | 2,195          | 16,248            | 3,943          | 80%        | 80%        |
| Education/government    | 920               | 712            | 1,704             | 1,319          | 85%        | 85%        |
| Households              | 40,354            | 82,633         | 70,878            | 145,135        | 76%        | 76%        |
| <b>Total</b>            | <b>58,183</b>     | <b>109,116</b> | <b>102,613</b>    | <b>192,006</b> | <b>76%</b> | <b>76%</b> |

Source: Cambridge Systematics, Inc., San Joaquin Valley Goods Movement Study Truck Model Documentation

**Table 3-9. Growth in Intermodal Transportation Systems Management Trips**

| EMPLOYMENT CATEGORY | 2000 ITMS     |               | 2030 ITMS     |                | GROWTH     |             |
|---------------------|---------------|---------------|---------------|----------------|------------|-------------|
|                     | MEDIUM        | HEAVY         | MEDIUM        | HEAVY          | MEDIUM     | HEAVY       |
| Exports             | 2,153         | 17,742        | 5,708         | 43,484         | 165%       | 145%        |
| Imports             | 2,153         | 17,742        | 5,708         | 43,484         | 165%       | 145%        |
| Internal trips      | 12,600        | 17,235        | 17,153        | 39,403         | 36%        | 129%        |
| Through trips       | 1,326         | 9,516         | 3,226         | 21,815         | 143%       | 129%        |
| <b>Total</b>        | <b>18,231</b> | <b>62,234</b> | <b>31,796</b> | <b>148,145</b> | <b>74%</b> | <b>138%</b> |

Source: Cambridge Systematics, Inc., San Joaquin Valley Goods Movement Study Truck Model Documentation

Table 3-10 shows the growth in truck traffic by county based on the estimated growth in employment and population. As shown in Table 3-10, the model predicts that medium-heavy truck traffic in Kern County will increase by 48 percent, while heavy-heavy truck traffic will increase by 87 percent. One notes that the San Joaquin Valley truck model indicates that the average increase in the category of medium trucks for the San Joaquin Valley is 91 percent.

**Table 3-10. Growth in Truck Traffic by County**

| COUNTY       | NUMBER OF COUNTS | 2000 MODEL     |                | 2030 MODEL     |                  | PERCENT DIFFERENCE |             |
|--------------|------------------|----------------|----------------|----------------|------------------|--------------------|-------------|
|              |                  | MEDIUM         | HEAVY          | MEDIUM         | HEAVY            | MEDIUM             | HEAVY       |
| Fresno       | 58               | 17,896         | 83,630         | 35,489         | 168,382          | 98%                | 101%        |
| Kern         | 10               | 30,143         | 106,756        | 44,762         | 199,110          | 48%                | 87%         |
| Kings        | 20               | 2,708          | 12,361         | 6,943          | 29,906           | 156%               | 142%        |
| Madera       | 121              | 3,983          | 32,326         | 7,762          | 57,160           | 95%                | 77%         |
| Merced       | 12               | 5,440          | 47,972         | 10,955         | 94,497           | 101%               | 97%         |
| San Joaquin  | 18               | 29,039         | 195,691        | 61,927         | 415,107          | 113%               | 112%        |
| Stanislaus   | 22               | 5,821          | 44,362         | 11,005         | 84,949           | 89%                | 91%         |
| Tulare       | 220              | 6,157          | 41,676         | 14,073         | 89,682           | 129%               | 115%        |
| <b>Total</b> |                  | <b>101,186</b> | <b>564,774</b> | <b>192,914</b> | <b>1,138,792</b> | <b>91%</b>         | <b>102%</b> |

Source: Cambridge Systematics, Inc., San Joaquin Valley Goods Movement Study Truck Model Documentation

The medium-heavy truck traffic is assumed to correspond to the 2 to 3 axle classification of trucks used by Caltrans. For the most part, these trucks are assumed to make internal-internal trips. Heavy-heavy trucks are assumed to correspond to the 4 to 5+ axle classification of trucks used by Caltrans. A portion of these truck volumes are assumed to be external-external, while a portion are internal-external or external-internal.

### ***Future Truck Volumes under the No-Build and Transportation Systems Management Alternatives***

While the model does not identify “through-trips” as a percentage of overall vehicle trips, the model’s distribution of medium-heavy and heavy-heavy trucks provides a basis for making a reasonable estimate of the amount of increase of these trips. Table 3-14 indicates the volumes of trucks using different segments of State Route 58 west (Rosedale Highway), reported from east to west. Because there is a dramatic difference in truck traffic volumes between the count location east of Enos Lane/State Route 43 (1,118 total trucks) and west of Mohawk Street (5,327 total trucks), it is assumed that the vehicle counts east of Enos Lane/State Route 43 represent primarily “through-trips.” According to this method, there are a total of 1,118 through-trip trucks; 481 of which are 2 to 3 axle trucks, and 637 are 4 to 5+ axle trucks.

Using these vehicle classification counts conducted along Rosedale Highway, one knows the breakdown of vehicles according to the 13 classifications established by the Federal Highway Administration. Parsons has used the 2 to 3 axle truck volumes to correspond to the medium-heavy trucks, most of which are assumed to be primarily local in their origins and destinations. These truck volumes are assumed to increase proportionally with the overall increase in traffic volumes using Rosedale Highway. The through-trip trucks that are 4 to 5+ axles are projected to increase by 87 percent over the study period.

Given the continuation of signalized intersections along Rosedale Highway under both the no-build and the transportation systems management/transit alternatives, this facility is not expected to draw or attract a significant number of truck trips from alternate routes, such as State Route 46, Lerdo Highway, 7th Standard Road, or State Route 119. Hence, the existing truck volumes along Rosedale Highway serve as an excellent benchmark for estimating future year truck volumes under both the no-build and transportation systems management/transit conditions.

Table 3-11 presents 2008 traffic count data along with the 2038 estimated volumes of trucks utilizing Rosedale Highway on weekdays.

Insofar as other east-west roadways connecting Interstate 5 with State Route 99, Table 3-12 reports existing heavy truck volumes on roadway links immediately east of Interstate 5 and those immediately west of State Route 99. Unlike State Route 58, heavy truck volumes both east of Interstate 5 and west of State Route 99 are very similar, indicating a likelihood that these truck movements are primarily through trips (external-external) in nature.

Projected heavy truck traffic using the existing roadway network is also shown in Table 3-12. In this case, the truck volumes are increased by 87 percent across the board—a conservative assumption.

**Table 3-11. Comparison of State Route 58 West (Rosedale Highway) Year 2008 Truck Traffic Counts with Year 2038 Truck Traffic Projections**

| LOCATION<br>TIME                          | 2008 TRAFFIC COUNT DATA |                 |                           |                             |                              |                              |                                | 2038 FORECAST<br>VOLUMES    |                              |
|---|-------------------------|-----------------|---------------------------|-----------------------------|------------------------------|------------------------------|--------------------------------|-----------------------------|------------------------------|
|   | ADT<br>TOTAL            | TOTAL<br>TRUCKS | TOTAL<br>TRUCK<br>PERCENT | TOTAL<br>2-3 AXLE<br>VOLUME | TOTAL<br>2-3 AXLE<br>PERCENT | TOTAL<br>4-5+ AXLE<br>VOLUME | 4-5+ AXLE<br>PERCENT<br>OF ADT | TOTAL<br>2-3 AXLE<br>VOLUME | TOTAL<br>4-5+ AXLE<br>VOLUME |
| <b>West of Mohawk Street</b>              |                         |                 |                           |                             |                              |                              |                                |                             |                              |
| Weekday average                           | 42,511                  | 5,327           | 12.5%                     | 2,554                       | 6.0%                         | 2,773                        | 6.5%                           | 3,780                       | 4,352                        |
| <b>West of Calloway Drive</b>             |                         |                 |                           |                             |                              |                              |                                |                             |                              |
| Weekday average                           | 30,708                  | 3,263           | 10.6%                     | 1,164                       | 3.8%                         | 2,099                        | 6.8%                           | 1,723                       | 3,355                        |
| <b>West of Allen Road</b>                 |                         |                 |                           |                             |                              |                              |                                |                             |                              |
| Weekday average                           | 16,425                  | 1,803           | 11.0%                     | 765                         | 4.7%                         | 1,038                        | 6.3%                           | 1,132                       | 1,785                        |
| <b>East of Enos Lane (State Route 43)</b> |                         |                 |                           |                             |                              |                              |                                |                             |                              |
| Weekday average                           | 7,105                   | 1,118           | 15.7%                     | 481                         | 6.8%                         | 637                          | 9.0%                           | 712                         | 1,191                        |

Notes:

1. Weekday average of Monday, February 11, 2008 through Friday, February 15, 2008.
2. Through truck traffic with 4–5+ axles increases by 87 percent. Other truck traffic increases by 48 percent over this time period.

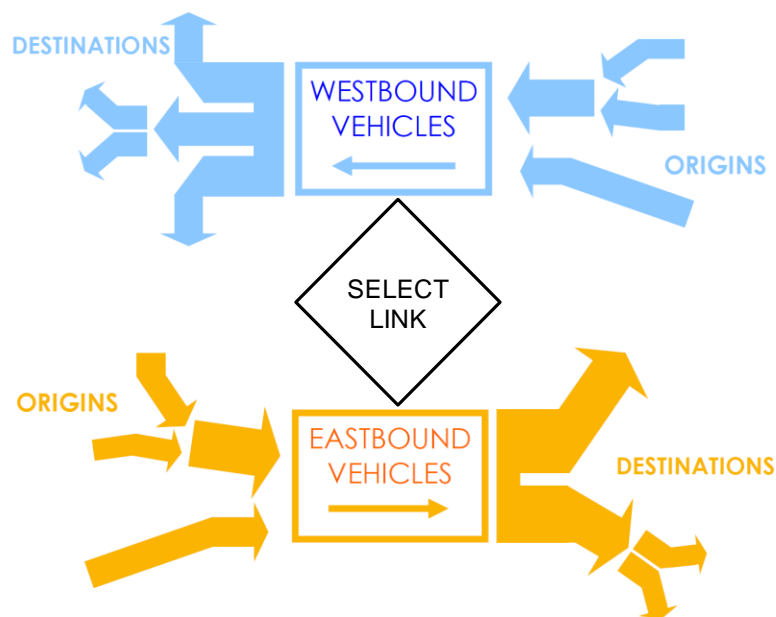
**Table 3-12. Vehicle and Truck Traffic on Kern County East–West Roadways (2010 and 2038)**

| ROADWAY              | EAST OF INTERSTATE 5 |                           |                            |                           | WEST OF STATE ROUTE 99 |                           |                            |                           |
|----------------------|----------------------|---------------------------|----------------------------|---------------------------|------------------------|---------------------------|----------------------------|---------------------------|
|                      | 2010                 |                           |                            | 2038                      | 2010                   |                           |                            | 2038                      |
|                      | TOTAL<br>VOLUME      | HEAVY<br>TRUCK<br>VOLUME* | PERCENT<br>HEAVY<br>TRUCKS | HEAVY<br>TRUCK<br>VOLUME* | TOTAL<br>VOLUME        | HEAVY<br>TRUCK<br>VOLUME* | PERCENT<br>HEAVY<br>TRUCKS | HEAVY<br>TRUCK<br>VOLUME* |
| State Route 46       | 5,830                | 1,820                     | 31.20%                     | 3,403                     | 6,710                  | 1,976                     | 29.40%                     | 3,695                     |
| Lerdo Highway        | 2,103                | 240                       | 11.40%                     | 449                       | 11,455                 | 263                       | 2.30%                      | 492                       |
| 7th Standard Road    | 2,597                | 418                       | 16.10%                     | 782                       | 10,667                 | 1,048                     | 9.80%                      | 1,960                     |
| Stockdale Highway    | 3,649                | 179                       | 4.90%                      | 335                       | 33,527                 | 506                       | 1.51%                      | 946                       |
| State Route 119      | 10,000               | 1,182                     | 11.80%                     | 2,210                     | 10,572                 | 935                       | 8.80%                      | 1,748                     |
| <b>Total Volumes</b> | <b>24,179</b>        | <b>3,839</b>              | <b>15.88%</b>              | <b>7,179</b>              | <b>72,931</b>          | <b>4,728</b>              | <b>12.12%</b>              | <b>8,841</b>              |

\*Heavy trucks are defined as 4 to 5+ axles.

**Future Truck Volumes under Build Alternatives and A, B and C**

Using a function provided with the Cube software (Citilabs) in the Kern COG traffic model, Parsons conducted a select link analysis of truck traffic volumes using State Route 58. This tool allows the user to pick a single point on the roadway network and illustrate the origin and destination of the traffic that passes through that point. The select link is akin to a count station which identifies the origin and destination of every vehicle that passes through that location. Figure 3-30 illustrates how the select link tool operates as a count station.



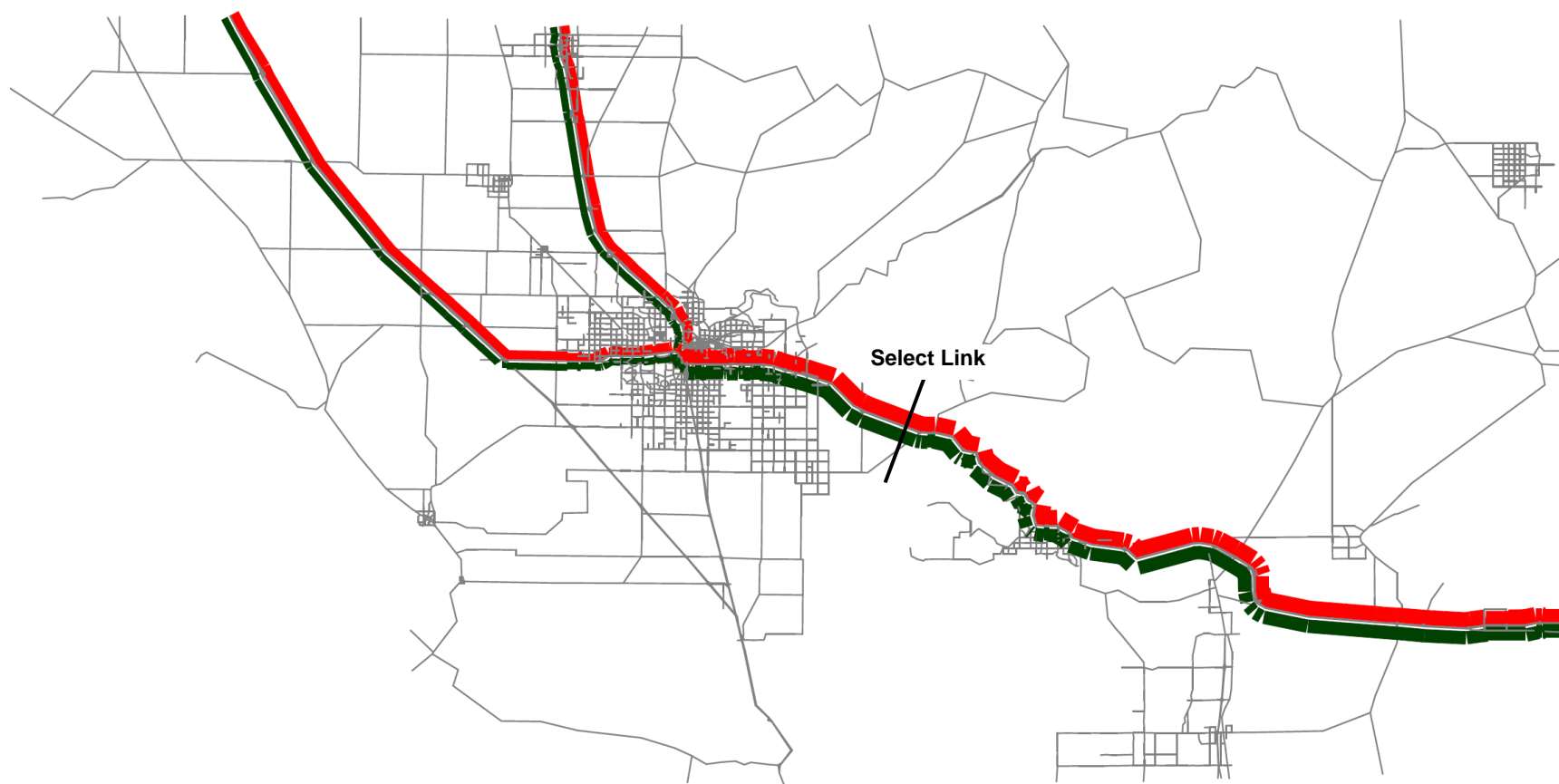
**Figure 3-30: How Select Link Analysis Works**

For this analysis, a point on State Route 58 west of the State Route 223 intersection and east of State Route 184 was selected. The select link tool tracked all traffic that flowed through this point as assigned by the Kern COG Regional Transportation Forecast Model. This location was chosen because it serves as a gateway to and from metropolitan Bakersfield for virtually all east–west truck traffic.

Figure 3-31 illustrates the assignment of truck traffic flowing through the “select link” on State Route 58 east of State Route 184. The Centennial Corridor freeway connector is assumed, connecting the State Route 58 freeway on the east with the Westside Parkway freeway on the west side of State Route 99. The graphic is instructive, because it illustrates that the Centennial Corridor would be the clear minimum time path for State Route 58 east truckers traveling to and from Interstate 5.

Based on the select link analysis, a diversion of trucks from their existing (no-build) routes of choice would be expected.

Table 3-13 indicates the proportion of heavy trucks and the year 2038 volume of trucks estimated to be attracted to the Centennial corridor, assuming build alternatives A, B, or C. These truck flow diversions are based on engineering judgment, based on the following rationale.



Source: Parsons

Figure 3-31: Year 2038 Daily Select Link Truck Traffic Volumes on State Route 58

**Table 3-13. Projected Truck Traffic on Centennial Corridor Build Alternatives A, B, and C**

| LOCATION             | EAST OF INTERSTATE 5                  |  |   | WEST OF STATE ROUTE 99                |  |   |
|----------------------|---------------------------------------|--|---|---------------------------------------|--|---|
|                      | ESTIMATED HEAVY TRUCK VOLUME NO-BUILD | PERCENT ATTRACTED TO CENTENNIAL CORRIDOR | ESTIMATED HEAVY TRUCKS ON CENTENNIAL CORRIDOR | ESTIMATED HEAVY TRUCK VOLUME NO-BUILD | PERCENT ATTRACTED TO CENTENNIAL CORRIDOR | ESTIMATED HEAVY TRUCKS ON CENTENNIAL CORRIDOR |
| State Route 46       | 3,403                                 | 70.0%                                    | 2,382   | 3,695                                 | 60.0%                                    | 2,217   |
| Lerdo Highway        | 449                                   | 70.0%                                    | 314   | 492                                   | 60.0%                                    | 295   |
| 7th Standard Road    | 782                                   | 80.0%                                    | 626   | 1,960                                 | 60.0%                                    | 1,176   |
| State Route 58       | 1,191                                 | 80.0%                                    | 953   | 4,352                                 | 70.0%                                    | 3,046   |
| Stockdale Highway    | 335                                   | 80.0%                                    | 268   | 376                                   | 70.0%                                    | 263   |
| State Route 119      | 2,210                                 | 40.0%                                    | 884   | 1,748                                 | 30.0%                                    | 524   |
| <b>Total Volumes</b> | <b>8,370</b>                          |  | <b>5,427</b>                                  | <b>12,623</b>                         |  | <b>7,521</b>                                  |

Source: Parsons

Analysis of the no-build and transportation systems management/transit alternative estimates of future year truck activity provides a baseline for estimating route choice diversions to the proposed higher speed, and shorter travel time offered by the Centennial Corridor build alternatives A, B, or C. It stands to reason that freight movement that is traveling closest to the Centennial Corridor will be more attracted to the new roadway, freight traffic that is currently traveling on a route further away, will be less attracted. This diversion will also be influenced based on whether the traffic is closest to Interstate 5 or State Route 99. Truckers bound to or from Interstate 5 are more likely to be through traffic, and will likely have a greater attraction to the new facility, which will be significantly faster and shorter than the existing routes.

The movement of light and medium duty trucks (2- and 3-axle trucks, FHWA classifications 4, 5, and 6) on the Centennial Corridor, will have a significantly different attraction pattern than the heavy duty trucks (4- and 5+-axle) projected to use this facility. The light and medium duty trucks primarily carry local freight, with less through movement than the regional and interregional travel pattern of the heavy-duty trucks. Because they serve a different purpose, it is projected that these trucks will be attracted to the Centennial Corridor facility in proportion to the overall use of the corridor by mixed traffic, excluding heavy (through) trucks.

Table 3-14 provides a comparison of the 2008 truck counts on Rosedale Highway with the year 2038 projections for Centennial build alternatives A, B, and C. Table 3-15 provides a similar set of data for year 2018 conditions.

**Table 3-14. Comparison of State Route 58 West (Rosedale Highway) Year 2008 Truck Traffic Counts with Centennial Corridor Year 2038 Forecasts**

| LOCATION                                  | 2008 TRAFFIC COUNT DATA ON STATE ROUTE 58 |                |                 |              | CENTENNIAL CORRIDOR YEAR 2038 FORECASTS<br>ALTERNATIVES A, B AND C |                |                 |              |
|---|---|----------------|-----------------|--------------|--|----------------|-----------------|--------------|
|   | ADT TOTAL                                 | TOTAL 2-3 AXLE | TOTAL 4-5+ AXLE | TOTAL TRUCKS | ADT TOTAL  | TOTAL 2-3 AXLE | TOTAL 4-5+ AXLE | TOTAL TRUCKS |
| <b>West of State Route 99</b>             |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 42,511                                    | 2,554          | 2,773           | 5,327        | 121,375  | 7,275          | 8,250           | 15,525       |
| <b>West of Calloway</b>                   |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 30,708                                    | 1,164          | 2,099           | 3,263        | 121,785  | 4,675          | 6,900           | 11,575       |
| <b>West of Allen Road</b>                 |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 16,425                                    | 765            | 1,038           | 1,083        | 81,033   | 3,725          | 6,250           | 9,975        |
| <b>East of Enos Lane (State Route 43)</b> |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 7,105                                     | 481            | 637             | 1,118        | 57,083   | 3,800          | 5,950           | 9,750        |
| <b>East of Interstate 5</b>               |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 7,043                                     | 453            | 819             | 1,272        | 14,580   | 825            | 3,325           | 4,150        |

Source: Parsons

Notes:

1. Trucks with 2-3 axles are primarily local traffic. Trucks with 4-5+ axles are primarily interregional traffic.
2. Rosedale Highway in 2008 does not include Westside Parkway or Centennial Corridor facilities.

**Table 3-15. Comparison of State Route 58 West (Rosedale Highway) Year 2008 Truck Traffic Counts with Centennial Corridor Year 2018 Forecasts**

| LOCATION                                  | 2008 TRAFFIC COUNT DATA ON STATE ROUTE 58 |                |                 |              | CENTENNIAL CORRIDOR YEAR 2018 FORECASTS<br>ALTERNATIVES A, B AND C |                |                 |              |
|---|---|----------------|-----------------|--------------|--|----------------|-----------------|--------------|
|   | ADT TOTAL                                 | TOTAL 2-3 AXLE | TOTAL 4-5+ AXLE | TOTAL TRUCKS | ADT TOTAL  | TOTAL 2-3 AXLE | TOTAL 4-5+ AXLE | TOTAL TRUCKS |
| <b>West of State Route 99</b>             |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 42,511                                    | 2,554          | 2,773           | 5,327        | 74,310   | 4,454          | 5,051           | 9,505        |
| <b>West of Calloway</b>                   |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 30,708                                    | 1,164          | 2,099           | 3,263        | 61,310   | 2,354          | 3,474           | 5,827        |
| <b>West of Allen Road</b>                 |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 16,425                                    | 765            | 1,038           | 1,083        | 25,225   | 1,160          | 1,946           | 3,105        |
| <b>East of Enos Lane (State Route 43)</b> |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 7,105                                     | 481            | 637             | 1,118        | 14,210   | 946            | 1,481           | 2,427        |
| <b>East of Interstate 5</b>               |   |                |                 |              |  |                |                 |              |
| Weekday average                           | 7,043                                     | 453            | 819             | 1,272        | 9,555  | 541            | 2,179           | 2,720        |

Source: Parsons

Notes:

1. Trucks with 2-3 axles are primarily local traffic. Trucks with 4-5+ axles are primarily interregional traffic.
2. Rosedale Highway in 2008 does not include Westside Parkway or Centennial Corridor facilities.

### 3.6 Comparison of Build Alternative versus No-build Traffic Performance

The build alternatives allow more vehicles to utilize State Route 58 compared with the no-build alternative; meaning that vehicles traverse fewer miles on parallel arterial streets and more miles on the State Route 58/Westside Parkway freeway under alternatives A, B, or C, or on Rosedale Highway, which is reclassified as an expressway between State Route 99 and Allen Road under the transportation systems management/transit alternative. Under the no-build alternative, traffic cascades across the highway network seeking available capacity; hence, traffic volume impacts are regional in addition to the study area.

To provide a regional comparison of the transportation systems management/transit build versus no-build traffic-related impacts, Parsons calculated regional benefits using the Kern COG 2006 Regional Travel Demand Model (Update 1) and STEAM 2.0, a system-wide analysis tool.

Table 3-16 reports daily travel statistics produced by the Kern COG 2006 Regional Travel Demand Model (Update 1) for year 2038 no-build and build alternative conditions. The table indicates that overall daily vehicle miles traveled increase for the four build alternatives compared to the no-build condition. The table indicates that the build alternatives have less overall vehicle hours traveled (VHT) than the no-build alternative. Average speeds increase from the no-build condition to the build alternatives.

In addition to the regional travel model, Parsons used STEAM 2.0 to calculate annual performance statistics. The Federal Highway Administration (FHWA) introduced the first version of the Surface Transportation Efficiency Analysis Model (STEAM) in 1997. STEAM was the first FHWA impact analysis product to use input directly from the four-step travel demand modeling process for detailed, system wide analysis of alternative transportation investments. STEAM 2.0 was released in 2000 to expand the scope of the program to address environmental justice measures.

“Like STEAM, STEAM 2.0 is based on the principles of economic analysis, and allows development of monetized impact estimates for a wide range of transportation and investments and policies, including major capital projects, pricing and travel demand management. Impact measures are monetized to the extent feasible, but quantitative estimates of natural resources usage (i.e., energy consumption) and environmental impacts (i.e., emissions) are also provided. Net monetary benefits (or costs) of alternatives can then be used to evaluate trade-offs against non-monetizable benefits, including sustainability and community livability.”<sup>2</sup>

An important feature of STEAM 2.0 is that the software program post-processes the traffic assignment volumes generated from conventional four-step travel forecasting models. The purpose of this feature is to compute benefits based on more accurate highway travel speeds, and to provide FHWA with a more consistent basis of comparison between urban areas.

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<sup>2</sup>Surface Transportation Efficiency Analysis Model (STEAM 2.0): User Manual, Cambridge Systematics, Inc., December 2000.

Table 3-16. Regional Travel Model Measures of Effectiveness

| FACILITY TYPE         | 2038 NO-BUILD ALTERNATIVE |                  |              | TRANSPORTATION SYSTEMS MANAGEMENT/ TRANSIT ALTERNATIVE |                  |              | BUILD ALTERNATIVE A |                  |              | BUILD ALTERNATIVE B |                  |              | BUILD ALTERNATIVE C |                  |              |
|-----------------------|---------------------------|------------------|--------------|--|------------------|--------------|---------------------|------------------|--------------|---------------------|------------------|--------------|---------------------|------------------|--------------|
|                       | VMT                       | VHT              | AVG SPEED    | VMT  | VHT              | AVG SPEED    | VMT                 | VHT              | AVG SPEED    | VMT                 | VHT              | AVG SPEED    | VMT                 | VHT              | AVG SPEED    |
| Freeways              | 19,424,678                | 301,424          | 64.44        | 19,381,198   | 298,924          | 64.84        | 19,902,411          | 308,027          | 64.61        | 19,970,560          | 309,097          | 64.61        | 20,004,215          | 310,239          | 64.48        |
| Expressways           | 939,844                   | 20,462           | 45.93        | 1,538,010  | 36,488           | 42.15        | 951,632             | 20,734           | 45.90        | 953,046             | 20,784           | 45.85        | 951,366             | 20,718           | 45.92        |
| Major arterials       | 15,746,341                | 452,289          | 34.81        | 15,201,145   | 431,083          | 35.26        | 15,288,008          | 436,522          | 35.02        | 15,278,278          | 437,271          | 34.94        | 15,244,957          | 436,299          | 34.94        |
| Minor arterials       | 1,825,513                 | 67,724           | 26.96        | 1,815,597  | 67,360           | 26.95        | 1,766,960           | 65,039           | 27.17        | 1,760,345           | 64,789           | 27.17        | 1,766,001           | 65,370           | 27.02        |
| Collectors            | 762,494                   | 38,448           | 19.83        | 755,071  | 38,046           | 19.85        | 725,959             | 35,759           | 20.30        | 724,242             | 35,701           | 20.29        | 733,412             | 36,330           | 20.19        |
| Centroids             | 2,429,247                 | 110,402          | 22.00        | 2,429,655  | 110,416          | 22.00        | 2,429,851           | 110,429          | 22.00        | 2,430,041           | 110,434          | 22.00        | 2,429,589           | 110,404          | 22.01        |
| Diamond ramps         | 417,504                   | 26,220           | 15.92        | 425,257  | 25,313           | 16.8         | 513,792             | 22,985           | 22.35        | 482,343             | 22,948           | 21.02        | 455,281             | 22,368           | 20.35        |
| Loop ramps            | 37,300                    | 2,103            | 17.74        | 34,709   | 2,096            | 16.56        | 35,507              | 1,755            | 20.23        | 36,565              | 1,890            | 19.35        | 35,106              | 1,765            | 19.89        |
| Cordon                | 655,308                   | 32,767           | 20.00        | 655,308  | 32,767           | 20.00        | 655,308             | 32,767           | 20.00        | 655,308             | 32,767           | 20.00        | 655,308             | 32,767           | 20.00        |
| <b>All Facilities</b> | <b>42,238,229</b>         | <b>1,051,840</b> | <b>40.16</b> | <b>42,235,949</b>                                      | <b>1,042,494</b> | <b>40.51</b> | <b>42,269,429</b>   | <b>1,034,017</b> | <b>40.88</b> | <b>42,290,728</b>   | <b>1,035,681</b> | <b>40.83</b> | <b>42,275,236</b>   | <b>1,036,259</b> | <b>40.80</b> |

Source: Parsons

The STEAM 2.0 speed models account for delays due to incidents, using data on the frequency, severity, and duration of incidents. Incidents account for a large share of total travel delays due to congestion, especially on freeways. The models also account for peak spreading that occurs when facilities become more congested. The traffic temporal distributions used in developing the models were based on data collected from 579 urban automatic traffic recorders across the nation. Separate temporal distributions were developed for freeways and arterials with low, moderate, and high ratios of average daily traffic to capacity. The models further account for day-to-day variations in traffic. The relationship between delays due to congestion and traffic volumes are highly non-linear in nature, especially when the ratio of demand volume to capacity is close to 1.0. Lastly, the STEAM 2.0 speed models account for the decrease in highway capacity that occurs after demand volumes exceed capacity. The 1994 Highway Capacity Manual notes that observations of freeway queue departure rates range from 1,500 to 2,000 passenger cars per hour per lane. In contrast, freeway capacities for 12-foot lanes with no lateral obstructions are 2,200 to 2,300 passenger cars per hour per lane. Not accounting for the fact that queue departure rates are generally lower than freeway capacities can result in a large understatement of the delays due to queuing.<sup>3</sup>

Table 3-17 reports measures of effectiveness computed with STEAM 2.0, based on travel demand forecast input from the Kern COG regional travel model. Monetized benefits and costs are reported in Section 5 of this document along with assumptions used in the STEAM 2.0 computations.

The data reported in Table 3-17 indicates that like the regional travel model performance statistics, annual vehicle miles traveled (VMT) increase with the build alternatives as motorists take advantage of higher speed routes to travel east–west across town. Travel time decreases, however, due to more efficient route choices and less congestion.

Crashes are forecast to decrease by implementing the build alternative improvements, as the accident rates for urban principal arterials, such as the no-build version of Rosedale Highway, are higher than expressways and freeways. The build alternatives also result in reduced fuel consumption.

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<sup>3</sup>Ibid.

Table 3-17. STEAM 2.0 Measures of Effectiveness (Year 2038)

|   | NO-BUILD<br>ALTERNATIVE               | TRANSPORTATION<br>SYSTEMS MANAGEMENT/<br>TRANSIT ALTERNATIVE | BUILD ALTERNATIVE |           |           |
|---|---------------------------------------|--|-------------------|-----------|-----------|
|   |                                       |  | A                 | B         | C         |
| 1. Travel Demand                              |                                       |  |                   |           |           |
| VTMT (million VTMT/year)                      | 9,951.4                               | 9,955.1  | 9,994.3           | 10,004.0  | 10,006.8  |
| Travel time (million person hours/year)       | 397.43                                | 395.95   | 391.57            | 391.93    | 391.53    |
| 2. Tons of Emissions (tons/year)              |                                       |  |                   |           |           |
| VTMT Related Emissions                        | Please see detailed technical studies |  |                   |           |           |
| HC  |                                       |  |                   |           |           |
| CO  |                                       |  |                   |           |           |
| NO <sub>x</sub>                               |                                       |  |                   |           |           |
| PM <sub>10</sub>                              |                                       |  |                   |           |           |
| Cold start emissions                          |                                       |  |                   |           |           |
| 3. Greenhouse Gas Emissions                   |                                       |  |                   |           |           |
| Btu energy consumption (100 billion Btu/year) | Please see detailed technical studies |  |                   |           |           |
| CO <sub>2</sub> emissions (1,000 tons/year)   |                                       |  |                   |           |           |
| 4. Accidents                                  |                                       |  |                   |           |           |
| Fatalities                                    | 68.3                                  | 68.2   | 67.8              | 67.9      | 67.9      |
| Injuries                                      | 7,409.1                               | 7,373.1  | 7,351.6           | 7,367.8   | 7,367.7   |
| Property damage only                          | 12,336.7                              | 12,292.5   | 12,300.2          | 12,322.9  | 12,327.4  |
| 5. Fuel Consumption                           |                                       |  |                   |           |           |
| Gallons (1,000 gallons/year)                  | 490,911.3                             | 490,030.0  | 488,715.5         | 489,141.6 | 488,885.5 |

Source: Parsons (based on STEAM 2.0)



## CHAPTER 4. TRAFFIC OPERATIONS ANALYSIS

### 4.1 Introduction

As indicated in Section 1.1, Caltrans, in cooperation with the City of Bakersfield, proposes to provide a continuous route along State Route 58 from Interstate 5 to existing State Route 58 east of State Route 99. The proposed continuous route has been divided into three distinct segments. The combination of these three segments comprises the Centennial Corridor project. Segment 1 is the eastern segment that would connect the Westside Parkway (Segment 2) to the existing State Route 58 east freeway. Segment 2 is comprised of what is locally known as the Westside Parkway and extends from Heath Road to Truxtun Avenue. Segment 3 is the western segment that extends from Interstate 5 to Heath Road.

The project's segments are numbered from east to west as shown on Figure 4-1.

Segment 1 extends from the easterly terminus of Segment 2 near Truxtun Avenue to the existing State Route 58 east freeway in the vicinity of Cottonwood Road. It is the only segment where construction alternatives A, B and C are being considered. These three build alternatives plus a transportation systems management/transit alternative (alternative M) and a no-build alternative are being considered.

Segment 2 encompasses a local freeway facility known as the Westside Parkway. As part of the Centennial Corridor project, it is anticipated that the Westside Parkway would be successfully adopted as State Route 58 (under build alternatives A, B, or C).

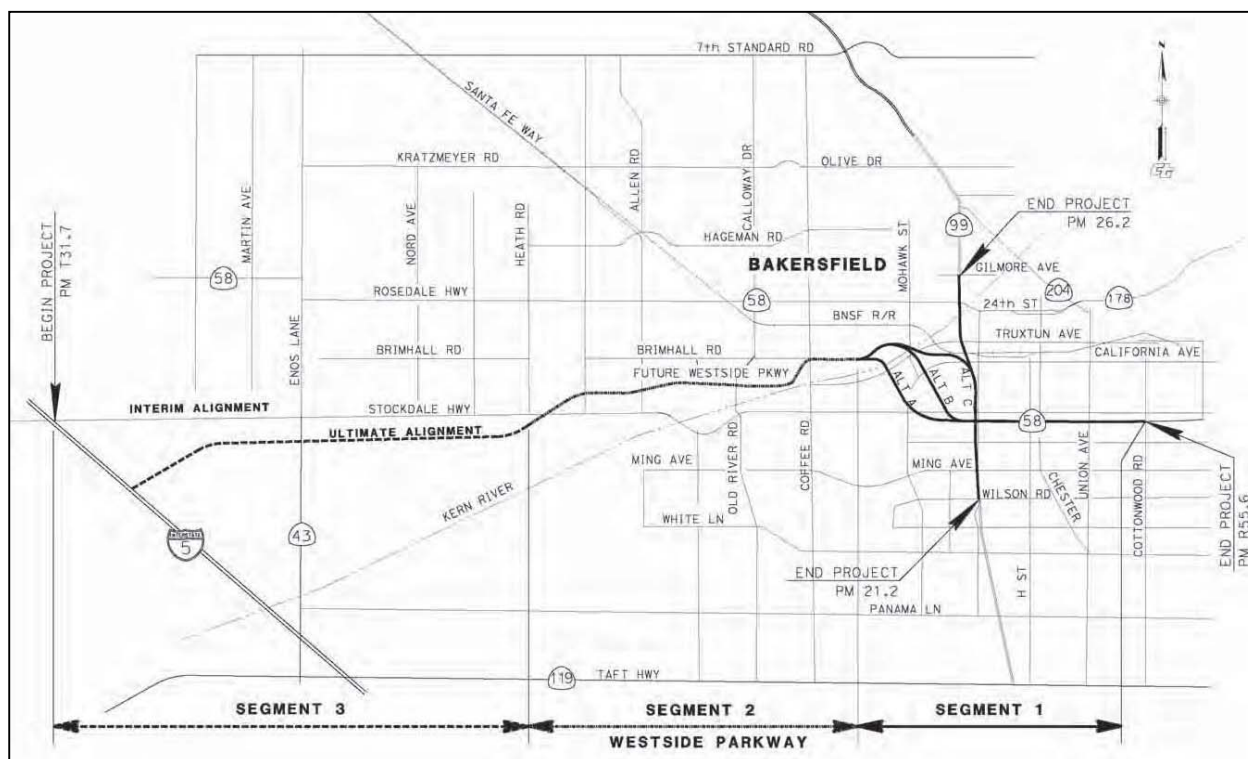


Figure 4-1: Segments for the Centennial Corridor

Westside Parkway is a local, access controlled, multilane freeway that extends from its western terminus near the intersection of Stockdale Highway near Heath Road to its eastern terminus near Mohawk Street, Truxtun Avenue and the Kern River.

Segment 3 extends from Interstate 5, approximately two miles south of the Stockdale Highway/Interstate 5 interchange, to the intersection of Heath Road and Stockdale Highway. The Centennial Corridor project proposes an interim connection to Interstate 5 via Stockdale Highway from the end of Segment 2 near Heath Road under build alternatives A, B, or C. Under alternative M, the connection to Interstate 5 would remain on existing State Route 58, known locally as Rosedale Highway.

This traffic operations analysis is focused on Segment 1, as the limits of construction primarily occur within this segment along with the majority of potential traffic related impacts. The traffic operations analysis addresses Segment 2 to determine if the freeway connector project (Segment 1) will impact the design requirements of the Westside Parkway. The analysis of Segment 3 traffic operations is limited to the interim connection to Interstate 5 via Stockdale Highway under build alternatives A, B, or C.

The no-build alternative, build alternatives A, B, and C, and the transportation systems management/transit alternative (alternative M) are addressed in this chapter. A summary comparison of the alternatives is provided at the end of the chapter.

## **4.2 Methodology**

The traffic operations analysis considers the overall performance of the highway network, the performance of the freeways affected by the project, specifically State Route 99 and State Route 58, local street intersections impacted by the project, and local traffic circulation impacts. These areas of interest are addressed for the opening year of the project, 2018, and a horizon year of 2038, which constitutes the design year for new construction related to the Centennial Corridor project.

The overall performance of the highway network was gauged using the Kern Council of Governments Regional Transportation Travel Forecasting Model, as previously discussed and reported in Chapter 3.

Freeway operational performance was measured using the CORSIM traffic simulation model. CORSIM (corridor simulation) is the traffic modeling and simulation software package funded by the Federal Highway Administration (FHWA) and is widely used for analyzing existing conditions and evaluating plans for new construction. To apply the simulation model, the physical features of the highway network must first be coded. This as-built condition was ascertained using an aerial photography base map and ground level reconnaissance. Traffic volumes and volume-weighted origin-destination matrices were then entered and the simulation model was calibrated to replicate existing conditions as measured by observed versus modeled traffic volumes, speeds, and traffic queues. Volume II (part 1 of 2) of this report documents the calibration of the CORSIM model for local conditions in metropolitan Bakersfield.

The calibration goal was to replicate local drivers' behavior and traffic characteristics to within  $\pm 10$  percent of the existing count and travel time data collected. As CORSIM is a stochastic model, traffic response is simulated on random seeds. Thus, each scenario of network conditions

(AM and PM) is simulated 10 times with different random seeds. The final result is based on the average of the 10 runs. Once the model is calibrated, it can be used to analyze both existing conditions and future scenarios.

To gauge traffic operational performance, level of service (LOS) is a qualitative measure used to describe the driver's experience within a traffic stream, generally in terms of service measures such as speed and travel time, freedom to maneuver, traffic interruptions and delay, and comfort and convenience. Six levels of service are defined by the Highway Capacity Manual (HCM) 2000. Letters designate each level—from LOS A (indicating traffic flows with little or no delay) to LOS F (indicating over-saturated conditions where traffic flow exceeds freeway capacity, generally resulting in long queues and delays). The level of service criteria for density on freeways are presented in Table 4-1.

**Table 4-1. Mainline and Ramp Level of Service Definitions**

| LOS | DESCRIPTION   | DENSITY (pc/mi/ln) |                         |
|-----|---|--------------------|-------------------------|
|     |   | MAINLINE           | RAMPS                   |
| A   | Describes free-flow operations. Free-flow speeds prevail.   | <11                | <10                     |
| B   | Represents reasonably free-flow operations and free-flow speeds are maintained.   | >11 and <18        | >10 and <20             |
| C   | Provides for flow with speeds at or near the free-flow speed of the freeway.  | >18 and <26        | >20 and <28             |
| D   | Describes the level at which speeds begin to decline slightly with increasing flows and density begins to increase somewhat more quickly. | >26 and <35        | >28 and <35             |
| E   | At this level's highest density value, it describes operation that is at capacity of the freeway.   | >35 and <45        | >35                     |
| F   | Describes breakdown in vehicular flow and queues forming behind the breakdown points.   | >45                | Demand exceeds capacity |

Source: Highway Capacity Manual 2000

To determine freeway level of service, the density of each mainline segment was extracted from the CORSIM output and compared to the criteria listed on Table 4-1.

It must be noted that CORSIM does not output HCM level of service. Simulation model measures of effectiveness are usually not directly translatable into HCM LOS measures, because the HCM bases hourly level of service on the performance of the facility during the peak 15-consecutive-minute period within the analysis hour. Also, most all simulation tools such as CORSIM report the density of vehicles; while the density used in HCM LOS for uninterrupted flow facilities (no signals or stop signs) is the passenger car equivalent in passenger car units of the actual density of vehicles on the facility.

Since each microscopic and macroscopic analysis tool (including the HCM method) has notably different definitions of what constitutes stopped and queued vehicles, and because the tools also vary significantly in the determination of which vehicles to include in the computations (vehicles that both entered and exited during the analysis period, vehicles that did neither, or vehicles that either entered or exited, but not both, during the analysis period), it is not feasible for an analyst to take the macroscopic output from one tool, apply a conversion factor (or procedure) and compare the results to that of another tool.

This conclusion means that looking up HCM levels of service using measures of effectiveness (MOE) produced by a different analytical method is not completely accurate.

The CORSIM derived LOS determinations are therefore considered approximations, to be viewed along with density and speed MOEs.

Insofar as existing conditions, Tables 4-2 through 4-5 list the freeway segment LOS computed via the HCM Highway Capacity Software, versus that estimated based on CORSIM microsimulation.

A comparison of the HCM versus CORSIM results indicates the following: For northbound State Route 99, the basic freeway level of service results are similar or better when the freeway is uncongested, operating at LOS D or better. For merge/diverge sections, CORSIM densities (and therefore LOS) are similar or higher than HCM calculations. Similar findings were also noticed for the southbound direction of State Route 99.

Examining the density parameter, upon which the level of service is graded, indicates the following:

- On State Route 58, which is less congested than State Route 99, the HCM High Capacity Software provides indications of higher densities, and thus more congestion, compared to the more extensive microsimulation of existing traffic operations using the CORSIM model.
- On State Route 99, CORSIM yields higher densities than HCS in segments which experience LOS D or worse traffic operations.

The HCM High Capacity Software software analyzes traffic operations based on isolated link conditions, whereas CORSIM analyzes freeway conditions taking downstream congestion and spillback into account.

For future year conditions, freeway traffic performance will be measured using a traffic simulation program, such as CORSIM, as recommended by FHWA for saturated traffic conditions in an urban setting.<sup>1</sup>

In addition to level of service, additional measures of effectiveness can be extracted from the CORSIM traffic simulation model output. These include link volumes served by the facility (throughput), speed, delay time, vehicle miles traveled, vehicle hours traveled, and overall vehicle delay. These are defined on Figure 4-2, which presents an example table of CORSIM analysis results.

In addition to evaluating the performance of the State Route 99 and State Route 58/Westside Parkway freeway segments in the study corridor, interchange ramp termini intersections were evaluated as part of this study. The CORSIM software was again used for the intersection analysis, as both freeway and the ramp intersections were modeled as an integrated system. CORSIM is capable of analyzing both unsignalized and signalized intersections and was used to compute control delay per vehicle. HCM 2000-defined levels of service criteria for intersections are presented in Table 4-6.


Table 4-7 lists the 79 intersections selected for study and Figure 4-3 illustrates their locations. As noted above, ramp terminal and adjacent intersections were analyzed using the CORSIM microsimulation software. The remaining isolated intersections were analyzed using SYNCHRO, version 6.0 software.

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<sup>1</sup> Interstate System Access Informational Guide, August 2010.

**Table 4-2. Freeway Mainline and Ramp Junction Level of Service—Existing Conditions—State Route 58 Eastbound**

| LOCATION                                 | LANES | TYPE    | HCM <sup>1</sup> |         |       |              |         |       | CORSIM <sup>2</sup> |         |       |              |         |       |
|--|-------|---------|------------------|---------|-------|--------------|---------|-------|---------------------|---------|-------|--------------|---------|-------|
|  |       |         | AM PEAK HOUR     |         |       | PM PEAK HOUR |         |       | AM PEAK HOUR        |         |       | PM PEAK HOUR |         |       |
|  |       |         | LOS              | DENSITY | SPEED | LOS          | DENSITY | SPEED | LOS                 | DENSITY | SPEED | LOS          | DENSITY | SPEED |
| SR 99 to H Street                        | 3     | Weave   | D                | —       | —     | D            | —       | —     | D                   | 31.9    | 57    | D            | 29.9    | 57    |
| H Street off-ramp to Chester Ave on-ramp | 2     | Basic   | D                | 29.0    | 63.5  | D            | 27.0    | 64.3  | C                   | 20.7    | 59    | C            | 20.8    | 61    |
| Chester Avenue on-ramp                   | 2     | Merge   | D                | 34.9    | 52.5  | D            | 33.8    | 53.3  | D                   | 32.7    | 57    | D            | 32.5    | 55    |
| Chester Avenue to Union Avenue           | 2     | Basic   | D                | 34.3    | 60.3  | D            | 33.7    | 60.7  | D                   | 33.3    | 53    | D            | 33.6    | 52    |
| Union Avenue off-ramp                    | 2     | Diverge | E                | 38.5    | 56.2  | E            | 38.1    | 56.8  | E                   | 35.5    | 53    | E            | 36.1    | 51    |
| Union Avenue off-ramp to on-ramp         | 2     | Basic   | C                | 24.7    | 64.9  | D            | 27.4    | 64.2  | C                   | 24.1    | 60    | C            | 25.8    | 59    |
| Union Avenue SB on-ramp                  | 2     | Merge   | D                | 29.1    | 55.4  | D            | 31.8    | 54.3  | C                   | 25.4    | 60    | C            | 27.6    | 59    |
| Union Avenue NB on-ramp                  | 2     | Merge   | D                | 30.5    | 55.3  | D            | 33.5    | 53.6  | C                   | 26.9    | 60    | D            | 29.4    | 60    |
| Union Avenue to Cottonwood Road          | 2     | Basic   | D                | 28.1    | 63.9  | D            | 33.2    | 61.0  | C                   | 25.9    | 61    | D            | 28.2    | 61    |

<sup>1</sup>Source: Fehr & Peers, 2010. See Table 2-6 for notes.<sup>2</sup>Source: Parsons, 2011
 Level of service E or F
**Table 4-3. Freeway Mainline and Ramp Junction Level of Service—Existing Conditions—State Route 58 Westbound**

| LOCATION                                 | LANES | TYPE    | HCM <sup>1</sup> |         |       |              |         |       | CORSIM <sup>2</sup> |         |       |              |         |       |
|--|-------|---------|------------------|---------|-------|--------------|---------|-------|---------------------|---------|-------|--------------|---------|-------|
|  |       |         | AM PEAK HOUR     |         |       | PM PEAK HOUR |         |       | AM PEAK HOUR        |         |       | PM PEAK HOUR |         |       |
|  |       |         | LOS              | DENSITY | SPEED | LOS          | DENSITY | SPEED | LOS                 | DENSITY | SPEED | LOS          | DENSITY | SPEED |
| Cottonwood Road to Union Avenue          | 2     | Basic   | D                | 30.4    | 62.8  | D            | 26.9    | 64.4  | D                   | 34.7    | 50    | C            | 24.5    | 62    |
| Brundage Lane off-ramp                   | 2     | Diverge | E                | 35.7    | 50.9  | D            | 32.7    | 51.3  | E                   | 48.2    | 32    | C            | 24.9    | 61    |
| Brundage Lane off-ramp to on-ramp        | 2     | Basic   | C                | 24.8    | 64.9  | C            | 23.6    | 65.0  | C                   | 22.9    | 57    | C            | 22.1    | 62    |
| Brundage Lane on-ramp                    | 2     | Merge   | D                | 29.4    | 55.3  | D            | 28.5    | 55.6  | C                   | 23.6    | 59    | C            | 24.9    | 60    |
| Union Avenue SB on-ramp                  | 2     | Merge   | D                | 31.3    | 54.4  | D            | 31.0    | 54.5  | D                   | 30.3    | 54    | D            | 30.7    | 54    |
| Chester Avenue off-ramp                  | 2     | Diverge | E                | 35.2    | 57.0  | E            | 35.0    | 57.1  | D                   | 34.5    | 48    | D            | 34.7    | 48    |
| Chester Ave off-ramp to H Street on-ramp | 2     | Basic   | C                | 24.7    | 64.9  | C            | 24.8    | 64.9  | C                   | 21.4    | 60    | C            | 23.8    | 60    |
| H Street on-ramp                         | 2     | Merge   | D                | 29.8    | 55.5  | D            | 31.0    | 55.0  | C                   | 24.8    | 58    | D            | 28.9    | 57    |
| H Street to SR 99                        | 2     | Basic   | D                | 27.9    | 64.0  | D            | 29.4    | 63.3  | C                   | 23.4    | 59    | D            | 27.2    | 58    |
| SR 99 NB off-ramp                        | 2     | Diverge | D                | 33.6    | 58.2  | D            | 34.8    | 58.4  | C                   | 24.3    | 60    | D            | 28.1    | 59    |
| SR 99 NB off-ramp to SB off-ramp         | 2     | Basic   | B                | 17.0    | 65.0  | C            | 18.6    | 65.0  | B                   | 15.9    | 58    | C            | 19.5    | 57    |
| SR 99 SB off-ramp                        | 2     | Diverge | C                | 22.2    | 49.9  | C            | 24.1    | 49.5  | B                   | 17.1    | 53    | C            | 21.0    | 53    |


<sup>1</sup>Source: Fehr & Peers, 2010. See Table 2-7 for notes.<sup>2</sup>Source: Parsons, 2011
 Level of service E or F


Table 4-4. Freeway Mainline and Ramp Junction Level of Service—Existing Conditions—State Route 99 Northbound

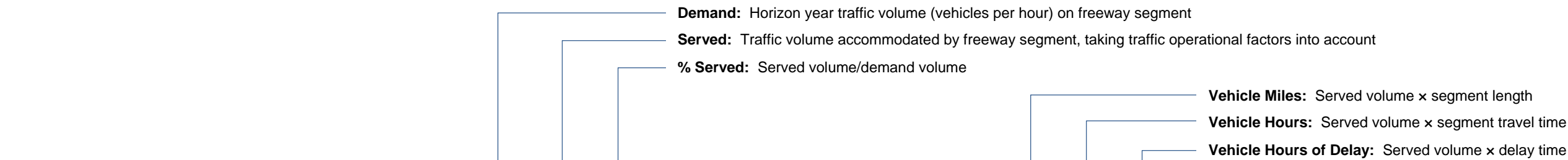
| LOCATION                                 | LANES | TYPE    | HCM <sup>1</sup> |         |       |              |         |       | CORSIM <sup>2</sup> |         |       |              |         |       |
|--|-------|---------|------------------|---------|-------|--------------|---------|-------|---------------------|---------|-------|--------------|---------|-------|
|  |       |         | AM PEAK HOUR     |         |       | PM PEAK HOUR |         |       | AM PEAK HOUR        |         |       | PM PEAK HOUR |         |       |
|  |       |         | LOS              | DENSITY | SPEED | LOS          | DENSITY | SPEED | LOS                 | DENSITY | SPEED | LOS          | DENSITY | SPEED |
| Panama Lane to White Lane                | 3     | Basic   | C                | 21.9    | 65.0  | B            | 15.1    | 65.0  | C                   | 18.8    | 63    | B            | 12.8    | 64    |
| White Lane off-ramp                      | 3     | Diverge | C                | 27.3    | 61.2  | C            | 21.0    | 60.8  | B                   | 18.6    | 63    | B            | 13.0    | 64    |
| White Lane off-ramp to loop on-ramp      | 3     | Basic   | C                | 20.6    | 65.0  | B            | 13.1    | 65.0  | B                   | 17.9    | 62    | B            | 11.1    | 63    |
| White Lane EB loop on-ramp               | 3     | Merge   | E                | 35.6    | 53.9  | C            | 25.0    | 58.1  | E                   | 47.9    | 38    | C            | 24.4    | 50    |
| White Lane WB on-ramp                    | 3     | Merge   | E                | 35.3    | 54.0  | C            | 23.9    | 58.6  | E                   | 38.3    | 53    | C            | 23.7    | 59    |
| White Lane to Ming Avenue                | 3     | Basic   | D                | 34.9    | 59.8  | C            | 21.5    | 65.0  | D                   | 29.3    | 59    | C            | 18.3    | 61    |
| Ming Avenue off-ramp                     | 4     | Diverge | C                | 27.6    | 59.4  | C            | 20.4    | 59.6  | D                   | 32.6    | 59    | C            | 22.2    | 61    |
| Ming Avenue off-ramp to on-ramp          | 4     | Basic   | C                | 22.8    | 65.0  | B            | 14.6    | 65.0  | D                   | 29.7    | 45    | B            | 14.4    | 56    |
| Ming Avenue on-ramp                      | 4     | Merge   | D                | 31.2    | 57.3  | C            | 24.0    | 59.5  | E                   | 48.9    | 43    | D            | 32.4    | 52    |
| SR 58 off-ramp                           | 4     | Diverge | E                | 40.6    | 61.4  | D            | 30.0    | 62.4  | E                   | 48.9    | 43    | D            | 32.5    | 52    |
| SR 58 off-ramp to Wible Road on-ramp     | 4     | Basic   | C                | 21.0    | 65.0  | B            | 13.6    | 65.0  | C                   | 19.7    | 60    | B            | 12.1    | 63    |
| Wible Road on-ramp                       | 4     | Merge   | C                | 23.3    | 59.0  | B            | 17.7    | 60.2  | C                   | 26.9    | 49    | C            | 20.5    | 57    |
| SR 58 on-ramp                            | 4     | Merge   | D                | 31.1    | 57.4  | C            | 24.8    | 59.4  | D                   | 34.0    | 56    | D            | 32.0    | 53    |
| SR 58 to California Avenue               | 4     | Basic   | D                | 28.8    | 63.6  | C            | 20.9    | 65.0  | D                   | 26.3    | 58    | C            | 19.6    | 59    |
| California Avenue off-ramp               | 4     | Diverge | E                | 36.7    | 60.9  | C            | 27.0    | 62.4  | E                   | 35.9    | 55    | C            | 27.8    | 59    |
| California Avenue off-ramp to on-ramp    | 4     | Basic   | C                | 23.4    | 65.0  | B            | 18.0    | 65.0  | C                   | 24.1    | 54    | B            | 17.7    | 57    |
| California Avenue EB on-ramp             | 4     | Merge   | C                | 25.3    | 58.5  | C            | 22.2    | 59.4  | D                   | 31.7    | 51    | D            | 28.9    | 53    |
| California Avenue WB on-ramp             | 4     | Merge   | C                | 24.8    | 58.5  | C            | 21.4    | 59.5  | E                   | 35.9    | 54    | D            | 34.9    | 52    |
| California Avenue to Rosedale Highway    | 4     | Basic   | D                | 26.5    | 64.5  | C            | 22.1    | 65.0  | D                   | 26.0    | 55    | C            | 20.9    | 56    |
| Rosedale Highway off-ramp                | 4     | Diverge | E                | 38.2    | 59.5  | D            | 34.3    | 59.2  | E                   | 40.1    | 51    | D            | 32.8    | 55    |
| Buck Owens Boulevard off-ramp            | 4     | Diverge | C                | 26.3    | 57.7  | B            | 18.9    | 59.9  | C                   | 21.0    | 58    | B            | 15.6    | 61    |
| Buck Owens Boulevard off-ramp to on-ramp | 4     | Basic   | B                | 16.5    | 65.0  | B            | 13.6    | 65.0  | B                   | 13.2    | 63    | B            | 11.2    | 63    |
| Buck Owens Boulevard on-ramp             | 4     | Merge   | B                | 18.6    | 60.0  | B            | 17.8    | 60.2  | C                   | 20.6    | 60    | B            | 19.9    | 59    |
| Airport Drive off-ramp                   | 4     | Diverge | C                | 27.9    | 59.2  | C            | 23.8    | 60.3  | C                   | 22.8    | 60    | C            | 20.9    | 60    |
| Airport Drive to Golden State Avenue     | 3     | Basic   | B                | 14.4    | 65.0  | B            | 14.2    | 65.0  | A                   | 9.7     | 64    | A            | 9.6     | 63    |

<sup>1</sup>Source: Fehr & Peers, 2010. See Table 2-8 for notes.<sup>2</sup>Source: Parsons, 2011
 Level of service E or F

Table 4-5. Freeway Mainline and Ramp Junction Level of Service—Existing Conditions—State Route 99 Southbound

| LOCATION                              | LANES | TYPE    | HCM <sup>1</sup> |         |       |              |         |       | CORSIM <sup>2</sup> |         |       |              |         |       |
|---------------------------------------|-------|---------|------------------|---------|-------|--------------|---------|-------|---------------------|---------|-------|--------------|---------|-------|
|                                       |       |         | AM PEAK HOUR     |         |       | PM PEAK HOUR |         |       | AM PEAK HOUR        |         |       | PM PEAK HOUR |         |       |
|                                       |       |         | LOS              | DENSITY | SPEED | LOS          | DENSITY | SPEED | LOS                 | DENSITY | SPEED | LOS          | DENSITY | SPEED |
| Golden State Avenue to Airport Drive  | 3     | Basic   | C                | 19.8    | 65.0  | C            | 19.7    | 65.0  | B                   | 15.5    | 64    | B            | 16.6    | 64    |
| Airport Drive on-ramp                 | 4     | Merge   | C                | 23.9    | 59.5  | D            | 29.2    | 58.1  | C                   | 27.2    | 57    | D            | 33.9    | 55    |
| Airport Drive to Rosedale Highway     | 4     | Basic   | C                | 19.4    | 65.0  | C            | 22.6    | 65.0  | B                   | 16.9    | 59    | C            | 21.0    | 57    |
| Rosedale Highway off-ramp             | 4     | Diverge | C                | 25.4    | 62.6  | D            | 28.5    | 62.4  | C                   | 25.5    | 60    | D            | 32.0    | 57    |
| Rosedale Highway off-ramp to on-ramp  | 4     | Basic   | B                | 16.7    | 65.0  | C            | 19.7    | 65.0  | B                   | 14.9    | 58    | C            | 25.4    | 42    |
| Rosedale Highway WB on-ramp           | 4     | Merge   | C                | 21.9    | 59.5  | D            | 28.9    | 57.9  | C                   | 25.7    | 55    | D            | 33.7    | 49    |
| Rosedale Highway EB on-ramp           | 4     | Merge   | C                | 25.9    | 58.9  | D            | 32.4    | 56.6  | D                   | 33.0    | 59    | E            | 37.2    | 58    |
| Rosedale Highway to California Avenue | 4     | Basic   | C                | 23.4    | 65.0  | D            | 30.5    | 62.7  | C                   | 20.8    | 59    | D            | 29.9    | 54    |
| California Avenue off-ramp            | 4     | Diverge | D                | 31.8    | 61.2  | E            | 37.1    | 61.1  | D                   | 33.6    | 58    | E            | 42.7    | 52    |
| California Avenue off-ramp to on-ramp | 4     | Basic   | C                | 18.7    | 65.0  | C            | 25.2    | 64.8  | B                   | 16.1    | 62    | D            | 31.2    | 45    |
| California Avenue on-ramp             | 4     | Merge   | C                | 20.4    | 59.6  | D            | 29.9    | 57.4  | D                   | 29.2    | 57    | D            | 34.8    | 56    |
| California Avenue to SR 58            | 4     | Basic   | C                | 20.0    | 65.0  | D            | 29.4    | 63.3  | B                   | 17.9    | 59    | D            | 27.4    | 57    |
| SR 58 off-ramp                        | 4     | Diverge | D                | 31.0    | 61.9  | F            | —       | —     | D                   | 28.1    | 59    | E            | 41.1    | 53    |
| SR 58 off-ramp to on-ramp             | 4     | Basic   | B                | 13.2    | 65.0  | C            | 20.1    | 65.0  | B                   | 11.5    | 63    | C            | 20.6    | 56    |
| SR 58 on-ramp                         | 4     | Merge   | C                | 20.5    | 59.8  | C            | 27.3    | 58.2  | D                   | 28.9    | 49    | D            | 31.4    | 51    |
| Real Road on-ramp                     | 4     | Merge   | B                | 18.3    | 60.1  | C            | 24.6    | 58.6  | C                   | 26.6    | 56    | D            | 34.2    | 55    |
| Ming Avenue off-ramp                  | 4     | Diverge | C                | 24.7    | 62.1  | E            | 36.2    | 60.0  | C                   | 24.7    | 59    | E            | 39.0    | 52    |
| Ming Avenue off-ramp to on-ramp       | 4     | Basic   | B                | 14.8    | 65.0  | C            | 19.5    | 65.0  | B                   | 12.7    | 63    | B            | 17.5    | 63    |
| Ming Avenue on-ramp                   | 3     | Merge   | C                | 22.0    | 58.9  | D            | 29.3    | 57.0  | B                   | 18.2    | 60    | C            | 25.2    | 59    |
| Ming Avenue to White Lane             | 3     | Basic   | C                | 21.4    | 65.0  | D            | 30.6    | 62.6  | B                   | 16.3    | 62    | C            | 24.0    | 59    |
| White Lane off-ramp                   | 3     | Diverge | B                | 15.1    | 59.1  | C            | 24.7    | 57.3  | C                   | 22.3    | 61    | D            | 34.6    | 56    |
| White Lane off-ramp to on-ramp        | 3     | Basic   | B                | 13.5    | 65.0  | B            | 17.7    | 65.0  | B                   | 11.2    | 63    | B            | 15.3    | 63    |
| White Lane WB on-ramp                 | 3     | Merge   | B                | 16.1    | 59.6  | C            | 20.1    | 58.9  | B                   | 12.0    | 62    | B            | 15.5    | 61    |
| White Lane EB on-ramp                 | 3     | Merge   | B                | 16.2    | 59.8  | C            | 20.0    | 59.2  | B                   | 12.3    | 62    | B            | 16.1    | 62    |
| White Lane to Panama Lane             | 3     | Basic   | B                | 14.7    | 65.0  | C            | 19.1    | 65.0  | B                   | 11.8    | 63    | B            | 16.0    | 62    |

<sup>1</sup>Source: Fehr & Peers, 2010. See Table 2-9 for notes.<sup>2</sup>Source: Parsons, 2011
 Level of service E or F



| FREEWAY SEGMENT   | SOV             |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |
|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|
|   | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) |
| SR-99 NB Mainline   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |
| SR-99 NB south end of the network to White Ln Off Ramp                      | 6,580           | 6,394           | 97%         | 69                          | 20                         | 46             | 35                     | D                 | 69                              | 5607                      | 123                       | 35                        |
| White Ln Off Ramp to White Ln Loop On Ramp                                  | 5,485           | 5,281           | 96%         | 31                          | 12                         | 39             | 34                     | D                 | 100                             | 1769                      | 46                        | 18                        |
| White Ln Loop On Ramp to White Ln Direct On Ramp                            | 7,130           | 5,797           | 81%         | 16                          | 10                         | 23             | 55                     | F                 | 116                             | 610                       | 26                        | 16                        |
| White Ln Direct On Ramp to Ming Ave Off Ramp                                | 7,740           | 6,092           | 79%         | 230                         | 158                        | 20             | 75                     | F                 | 346                             | 7805                      | 389                       | 267                       |
| Ming Ave Off Ramp to Ming Ave On Ramp                                       | 6,920           | 5,160           | 75%         | 85                          | 59                         | 18             | 71                     | F                 | 431                             | 2208                      | 121                       | 85                        |
| Ming Ave On Ramp to SR58 EB/Wible Rd Off Ramp                               | 8,415           | 6,490           | 77%         | 20                          | 9                          | 31             | 46                     | F                 | 451                             | 1139                      | 36                        | 17                        |
| SR58 EB/Wible Rd Off Ramp to Wible Rd On Ramp                               | 5,915           | 4,565           | 77%         | 32                          | 2                          | 61             | 19                     | C                 | 483                             | 2498                      | 41                        | 2                         |
| Wible Rd On Ramp to SR58 WB On Ramp   | 6,525           | 5,079           | 78%         | 10                          | 1                          | 60             | 19                     | C                 | 493                             | 812                       | 13                        | 1                         |
| SR58 WB On Ramp to California Ave Off Ramp                                  | 8,240           | 6,129           | 74%         | 36                          | 4                          | 58             | 26                     | C                 | 529                             | 3539                      | 61                        | 7                         |
| California Ave Off Ramp to California Ave Loop On Ramp                      | 7,360           | 5,432           | 74%         | 17                          | 1                          | 62             | 22                     | C                 | 545                             | 1534                      | 25                        | 1                         |
| California Ave Loop On Ramp to California Ave Direct On Ramp                | 8,100           | 6,083           | 75%         | 9                           | 1                          | 56             | 25                     | C                 | 555                             | 904                       | 16                        | 2                         |
| California Ave Direct On Ramp to Rosedale Hwy Off Ramp                      | 8,430           | 6,003           | 71%         | 24                          | 3                          | 57             | 23                     | C                 | 579                             | 2287                      | 40                        | 4                         |
| Rosedale Hwy Off Ramp to Buck Owens Blvd/Sillect Ave Off Ramp               | 6,340           | 4,305           | 68%         | 16                          | 1                          | 62             | 17                     | B                 | 594                             | 1167                      | 19                        | 1                         |
| Buck Owens Blvd/Sillect Ave Off Ramp to Buck Owens Blvd/Sillect Ave On Ramp | 5,790           | 3,904           | 67%         | 33                          | 1                          | 62             | 16                     | B                 | 628                             | 2259                      | 36                        | 1                         |
| Buck Owens Blvd/Sillect Ave On Ramp to Airport Dr Off Ramp                  | 6,540           | 4,625           | 71%         | 34                          | 3                          | 60             | 19                     | C                 | 662                             | 2628                      | 44                        | 3                         |
| Airport Dr Off Ramp to SR99 NB north end of the network                     | 5,125           | 3,621           | 71%         | 41                          | 1                          | 62             | 15                     | B                 | 703                             | 2557                      | 41                        | 1                         |
| SR-99 SB Mainline   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |
| SR99 SB north end of the network to Airport Dr On Ramp                      | 4,595           | 4,548           | 99%         | 55                          | 8                          | 57             | 20                     | C                 | 55                              | 3950                      | 69                        | 10                        |
| Airport Dr On Ramp to Rosedale Hwy Off Ramp                                 | 6,710           | 5,386           | 80%         | 70                          | 39                         | 28             | 48                     | F                 | 125                             | 2917                      | 105                       | 59                        |
| Rosedale Hwy Off Ramp to Rosedale Hwy Loop On Ramp                          | 5,615           | 4,452           | 79%         | 26                          | 2                          | 59             | 19                     | C                 | 152                             | 1915                      | 33                        | 3                         |
| Rosedale Hwy Loop On Ramp to Rosedale Hwy Direct On Ramp                    | 6,995           | 5,458           | 78%         | 14                          | 2                          | 58             | 21                     | C                 | 166                             | 1241                      | 21                        | 2                         |
| Rosedale Hwy Direct On Ramp to California Ave Off Ramp                      | 8,620           | 6,862           | 80%         | 38                          | 8                          | 52             | 32                     | D                 | 204                             | 3744                      | 72                        | 16                        |
| California Ave Off Ramp to California Ave On Ramp                           | 7,430           | 5,802           | 78%         | 15                          | 2                          | 55             | 27                     | D                 | 219                             | 1350                      | 25                        | 4                         |
| California Ave On Ramp to SR58 EB/Stockdale Hwy Off Ramp                    | 8,480           | 6,554           | 77%         | 36                          | 10                         | 48             | 34                     | D                 | 255                             | 3145                      | 66                        | 19                        |
| SR58 EB/Stockdale Hwy Off Ramp to SR58 WB On Ramp                           | 6,385           | 4,782           | 75%         | 57                          | 17                         | 45             | 27                     | D                 | 312                             | 3364                      | 75                        | 23                        |
| SR58 WB On Ramp to Real Rd On Ramp  | 8,140           | 5,566           | 68%         | 11                          | 6                          | 24             | 49                     | F                 | 323                             | 402                       | 17                        | 10                        |
| Real Rd On Ramp to Ming Ave Off Ramp  | 8,795           | 5,953           | 68%         | 34                          | 13                         | 39             | 36                     | E                 | 357                             | 2200                      | 56                        | 21                        |
| Ming Ave Off Ramp to Ming Ave On Ramp                                       | 7,050           | 4,814           | 68%         | 60                          | 26                         | 38             | 33                     | D                 | 417                             | 3030                      | 80                        | 34                        |
| Ming Ave On Ramp to White Ln Off Ramp                                       | 7,885           | 4,834           | 61%         | 178                         | 118                        | 21             | 55                     | F                 | 594                             | 5016                      | 238                       | 158                       |
| White Ln Off Ramp to White Ln Loop On Ramp                                  | 5,855           | 3,494           | 60%         | 20                          | 1                          | 62             | 14                     | B                 | 614                             | 1171                      | 19                        | 1                         |
| White Ln Loop On Ramp to White Ln Direct On Ramp                            | 6,430           | 4,041           | 63%         | 10                          | 1                          | 61             | 15                     | B                 | 624                             | 684                       | 11                        | 1                         |
| White Ln Direct On Ramp to SR99 SB south end of the network                 | 7,105           | 4,280           | 60%         | 52                          | 2                          | 62             | 17                     | B                 | 676                             | 3864                      | 62                        | 3                         |

**LOS:** Approximate level of service. Note that CORSIM's computation of density differs from the Highway Capacity Manual

**Density:** The indicator of level of service according to the *2000 Highway Capacity Manual*

**Speed:** An indicator of level of service according to the *1994 Highway Capacity Manual*

**Delay Time:** Travel time in excess of "free flow," uncongested travel time

**Travel Time:** Time to traverse freeway segment (seconds per vehicle)

Figure 4-2: Measures of Effectiveness  
Derived from CORSIM  
Traffic Simulation Model

Table 4-6. Level of Service Definitions for Intersections

| LOS | DESCRIPTION   | CONTROL DELAY PER VEHICLE<br>(sec/veh) |            |
|-----|---|--|------------|
|     |   | UNSIGNALIZED                           | SIGNALIZED |
| A   | Traffic flows with very little delay and optimal speeds. Most vehicles do not stop at all.  | 0–10                                   | <10        |
| B   | Traffic flows with very little delay and speeds may be slightly reduced. Very infrequent and short waits at traffic signals. More vehicles stop at intersections than for LOS A.      | >10–15                                 | >10–20     |
| C   | Traffic speeds continue to slow. Some vehicles may stop at this level, although many vehicles still pass through the intersection without stopping.                                   | >15–25                                 | >20–35     |
| D   | Congestion becomes more noticeable. Many vehicles stop and the proportion of vehicles not stopping declines.  | >25–35                                 | >35–55     |
| E   | Low speeds and traffic backups at intersections. Often considered to be the limit of acceptable delay.  | >35–50                                 | >55–80     |
| F   | Very slow speeds and congestion. Long traffic backups. Very likely to wait for multiple greens to get through an intersection. This is considered to be unacceptable to most drivers. | >50                                    | >80        |

Source: Highway Capacity Manual 2000

Table 4-7. List of Study Intersections

| NO.              | INTERSECTION                                    | NO. | INTERSECTION  |
|------------------|---|-----|---|
| <b>Segment 3</b> |   | 36  | Airport Drive/State Road–SR 204 off-ramp            |
| 1                | I-5 southbound ramps/Stockdale Highway          | 37  | Airport Drive/SR 99 northbound ramp                 |
| 2                | I-5 northbound ramps/Stockdale Highway          | 38  | Buck Owens Boulevard/Rio Mirada Drive               |
| 3                | SR 43 (Enos Lane)/Rosedale Highway              | 39  | SR 99 northbound ramps/Buck Owens Boulevard         |
| 4                | SR 43 (Enos Lane)/Stockdale Highway             | 40  | Rosedale Highway/Camino Del Rio Court               |
| 5                | SR 43 (Enos Lane)/I-5 northbound ramps          | 41  | Rosedale Highway/SR 99 southbound ramps             |
| 6                | SR 43 (Enos Lane)/I-5 southbound ramps          | 42  | Rosedale Highway/SR 99 northbound ramps             |
| 7                | Stockdale Highway/Nord Road                     | 43  | 24th Street/Oak Street                              |
| 8                | Stockdale Highway/Wegis Avenue                  | 44  | Truxtun Avenue/Empire Drive                         |
| <b>Segment 2</b> |   | 45  | Truxtun Avenue/Oak Street                           |
| 9                | Stockdale Highway/Heath Road                    | 46  | California Avenue/Chester Lane                      |
| 10               | Stockdale Highway/Westside Parkway              | 47  | California Avenue/SR 99 southbound ramps            |
| 11               | West Beltway/Westside Parkway westbound ramp    | 48  | California Avenue/SR 99 northbound ramps            |
| 12               | West Beltway/Westside Parkway eastbound ramp    | 49  | California Avenue/Oak Street                        |
| 13               | Allen Road/Rosedale Highway                     | 50  | Stockdale Highway/Stine Road                        |
| 14               | Allen Road/Brimhall Road                        | 51  | Stockdale Highway/Real Road                         |
| 15               | Allen Road/Westside Parkway westbound ramps     | 52  | Stockdale Highway/SR 99 southbound ramp             |
| 16               | Allen Road/Westside Parkway eastbound ramps     | 53  | Brundage Lane/Oak Street                            |
| 17               | Allen Road/San Juan Avenue                      | 54  | Real Road/SR 58                                     |
| 18               | Allen Road/Stockdale Highway                    | 55  | Wible Road/SR 99 northbound ramps                   |
| 19               | Calloway Drive/Rosedale Highway                 | 56  | Ming Avenue/New Stine                               |
| 20               | Calloway Drive/Brimhall Road                    | 57  | Ming Avenue/Real Road                               |
| 21               | Calloway Drive/Westside Parkway westbound ramps | 58  | Ming Avenue/SR 99 southbound ramps                  |
| 22               | Calloway Drive/Westside Parkway eastbound ramps | 59  | Ming Avenue/Wible Road                              |
| 23               | Calloway Drive/Stockdale Highway                | 60  | Ming Avenue/SR 99 northbound ramps                  |
| <b>Segment 1</b> |   | 61  | Ming Avenue/Castro Lane                             |
| 24               | Coffee Road/Rosedale Highway                    | 62  | White Lane/Wible Road                               |
| 25               | Coffee Road/Brimhall Road                       | 63  | Ming Avenue/SR 99 southbound ramps                  |
| 26               | Coffee Road/Westside Parkway westbound ramps    | 64  | Ming Avenue/SR 99 northbound ramps                  |
| 27               | Coffee Road/Westside Parkway eastbound ramps    | 65  | Ming Avenue/Hughes Lane                             |
| 28               | Coffee Road/Truxtun Avenue                      | 66  | H Street/Brundage Lane                              |
| 29               | Coffee Road/Stockdale Highway                   | 67  | H Street/SR 58 westbound ramp                       |
| 30               | Mohawk Street/Rosedale Highway                  | 68  | H Street/SR 58 eastbound ramp                       |
| 31               | Mohawk Street/Westside Parkway westbound ramps  | 69  | H Street/Ming Avenue                                |
| 32               | Mohawk Street/Westside Parkway eastbound ramps  | 70  | Chester Avenue/Brundage Lane                        |
| 33               | Mohawk Street/Truxtun Avenue                    | 71  | Chester Avenue/SR 58 westbound ramp                 |
| 34               | Mohawk Street/California Avenue                 | 72  | Chester Avenue/SR 58 eastbound ramp                 |
| 35               | Stockdale Highway/California Avenue             | 73  | Chester Avenue/Ming Avenue                          |
|                  |   | 74  | Union Avenue/Brundage Lane                          |
|                  |   | 75  | Brundage Lane/SR 58 westbound ramps                 |
|                  |   | 76  | Union Avenue/SR 58 eastbound ramps                  |
|                  |   | 77  | Cottonwood Road-MLK/Brundage Lane                   |
|                  |   | 78  | Cottonwood Road–Brundage Lane/SR 58 westbound ramps |
|                  |   | 79  | Cottonwood Road/SR 58 eastbound ramps               |

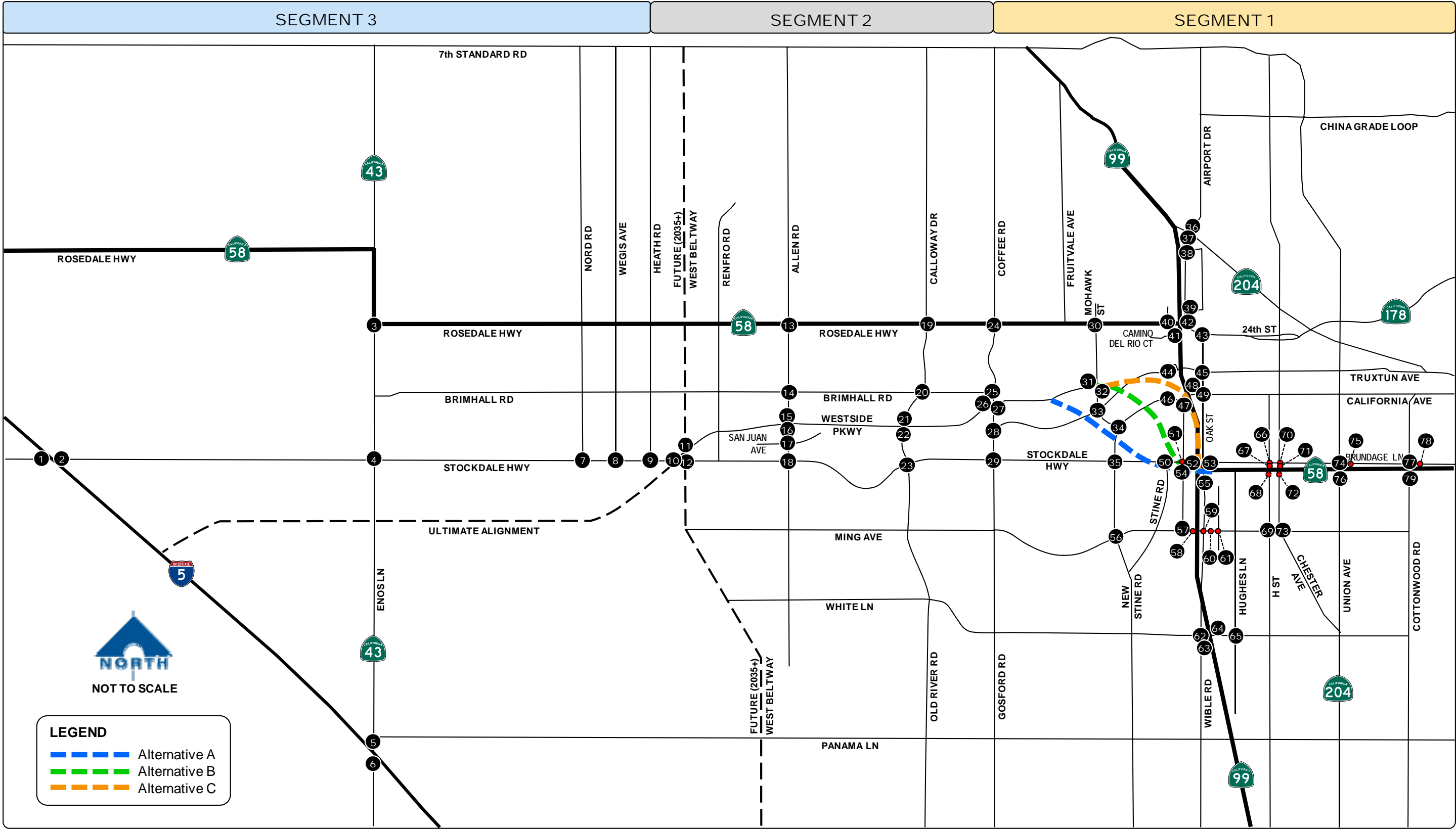


Figure 4-3: Location Map of Study Intersections

### 4.3 Traffic Performance of the No-build Alternative

The no-build alternative was described in Section 3.4, but is repeated here for reference.

The no-build alternative includes all projects identified in Table 3-3 and Figures 3-4 and 3-5 except for the State Route 58 Connector/Centennial Corridor (State Route 58 to Westside Parkway) as identified on Figure 3-4 as project number 22.

Key projects included with the no-build alternative, all of which are identified in Amendment 1 to the *2011 Regional Transportation Plan* and the associated *Air Quality Conformity Determination*, are listed below with the locations of the projects illustrated on Figure 4-4.

| Project          | Location   | Start |
|------------------|--|-------|
| Route 58         | Rosedale Highway—Calloway Drive to Route 99—Widen existing highway         | 2013  |
| Route 58         | Rosedale Highway—Allen Road to Calloway Drive—Widen existing highway       | 2013  |
| Route 58         | Route 99 to Cottonwood Road—Widen to six lanes                             | 2015  |
| Route 99         | Wilson Road to Route 119—Widen to eight lanes                              | 2012  |
| Route 99         | Route 204 to 7th Standard Road—Widen to eight lanes (Phase 1)              | 2012  |
| Westside Parkway | Route 99/Oak Street to Heath Road—Construct local freeway                  | 2009  |
| Hageman Flyover  | Knudsen Drive to Route 204—Construct extension                             | 2013  |
| Oak St/24th St   | Route 178 (24th Street) and Oak Street—Construct improvements              | 2012  |
| 24th Street      | Route 178 (24th and 23rd St) Oak Street to M Street—Widen existing highway | 2013  |
| Route 58         | Rosedale Highway—Route 43 to Allen Road—Widen existing highway             | 2025  |
| West Beltway     | Rosedale Highway to Westside Parkway—Construct new facility                | 2025  |
| Route 204        | Airport Drive to Route 178—Widen existing highway                          | 2030  |
| Route 204        | F Street—Construct interchange   | 2030  |
| Route 58         | At various locations—ramp improvements                                     | 2033  |
| Route 99         | Route 204 to 7th Standard Road—Widen to eight lanes (Phase 2)              | 2033  |
| Route 99         | At various locations—ramp improvements                                     | 2033  |
| West Beltway     | Pacheco Road to Westside Parkway—Construct new facility                    | 2033  |
| West Beltway     | Rosedale Highway to 7th Standard Road—Construct new facility               | 2033  |
| West Beltway     | Taft Highway to Pacheco Road—Construct new facility                        | 2033  |

Given these investments, the roadway network will experience congestion along Rosedale Highway, 24th Street, the Truxtun Avenue extension west of Oak Street, portions of Stockdale Highway, State Route 99, portions of State Route 178, Coffee Road, Mohawk Street, and Union Avenue. The severity of congestion, as measured by level of service grade (D, E, or F), and location of congestion are depicted on Figure 4-5.

As indicated above, the CORSIM traffic simulation model was used to quantify the performance of the State Route 58 and State Route 99 freeway segments and ramps located within the study area. The configuration of these freeway segments, insofar as the number of lanes and interchange on- and off-ramps, and traffic demand volumes for 2038 are illustrated on Figure 4-6.

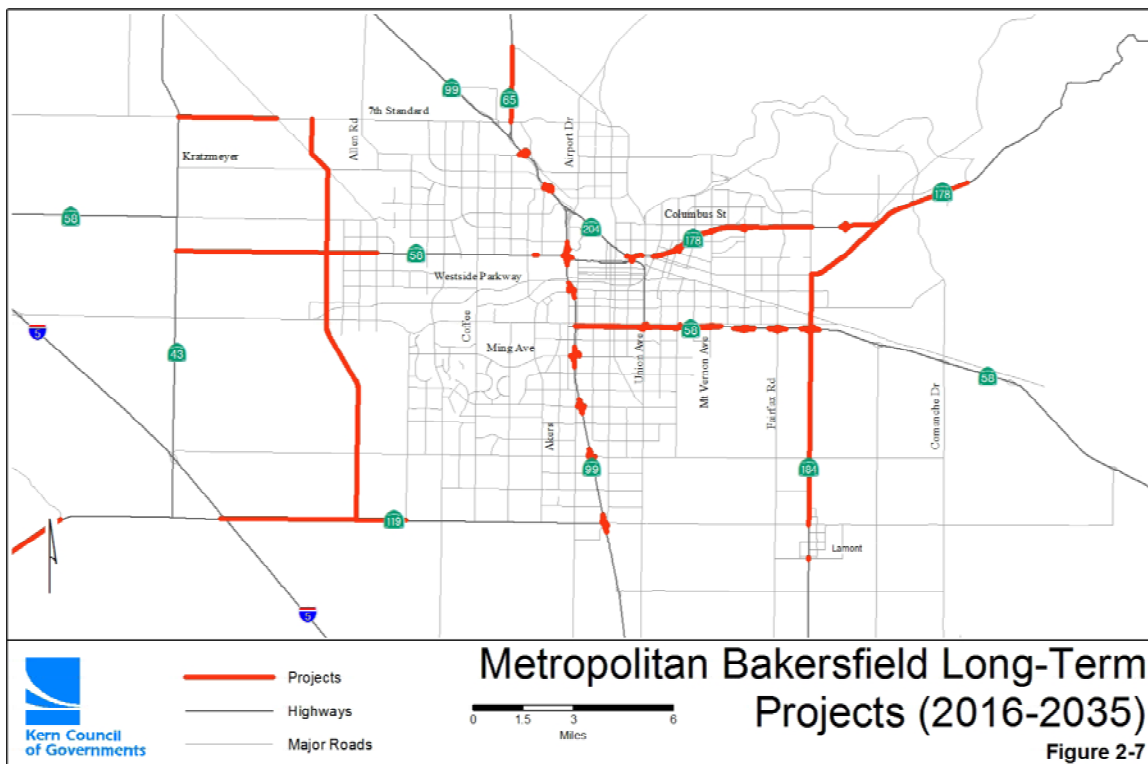
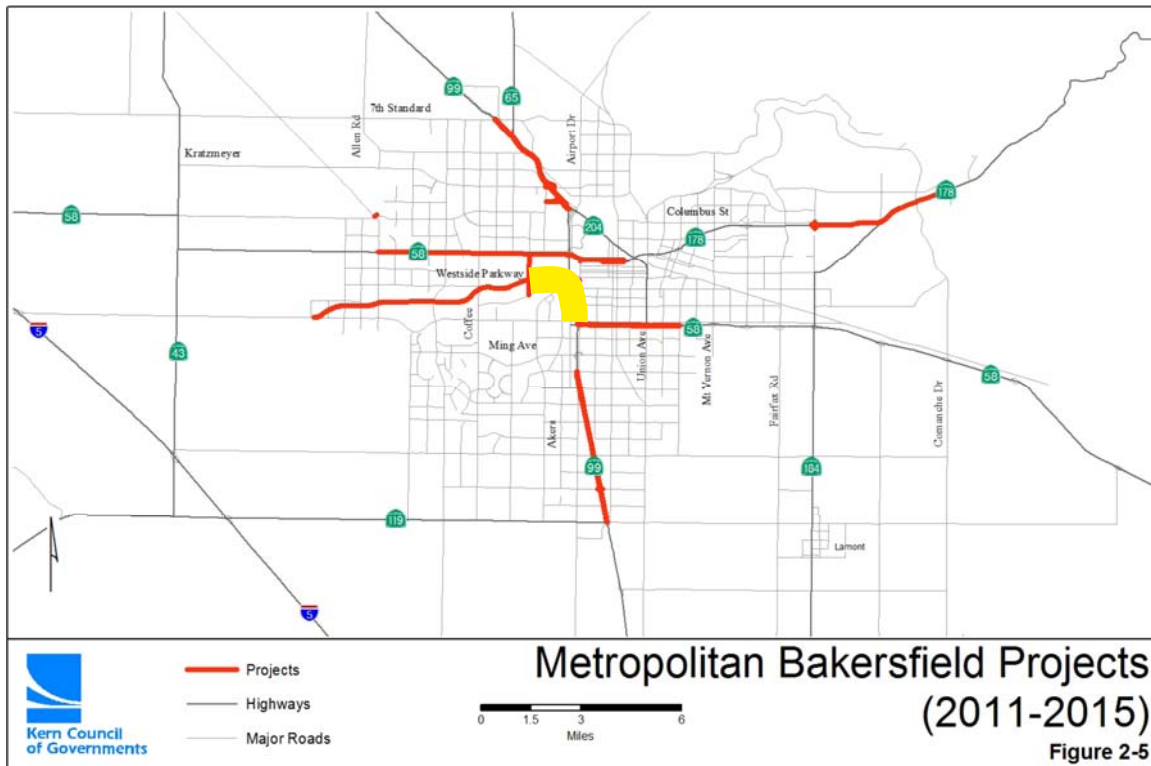


Figure 4-4: Locations of Key No-Build Alternative Projects

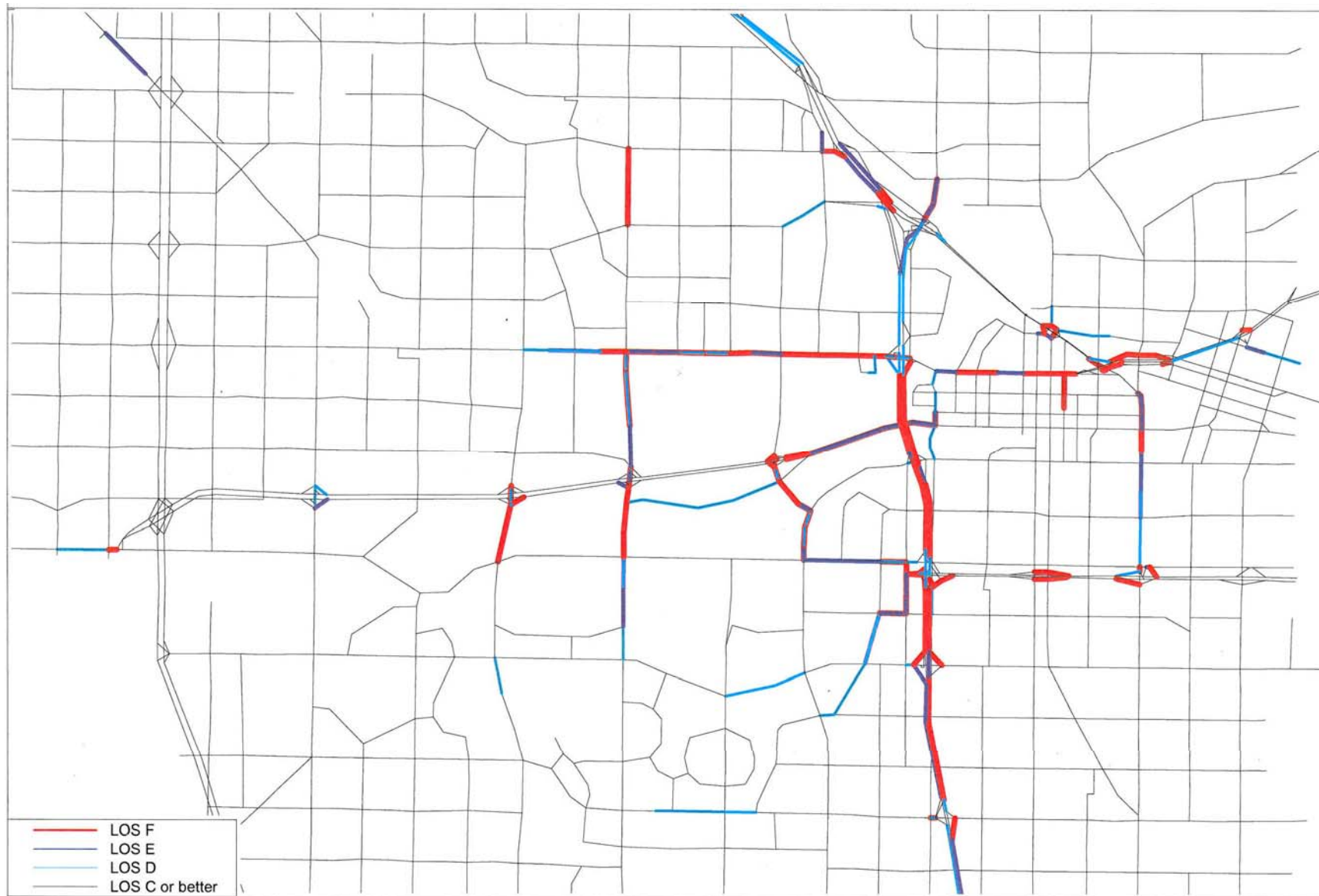
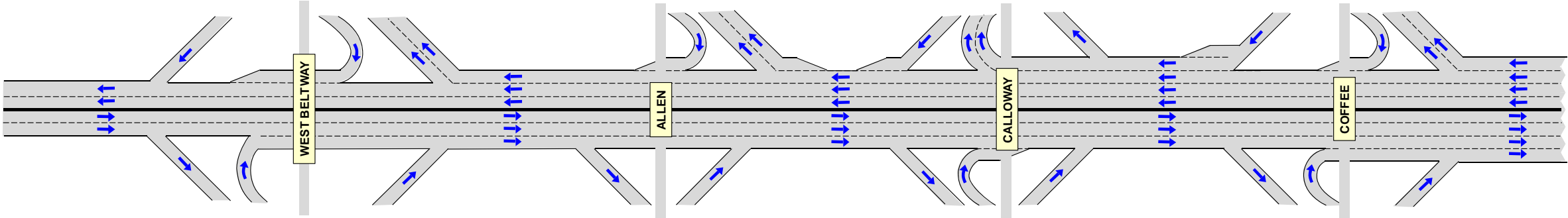


Figure 4-5: Locations of Congestion for the No-Build Alternative

A. State Route 58 and Westside Parkway

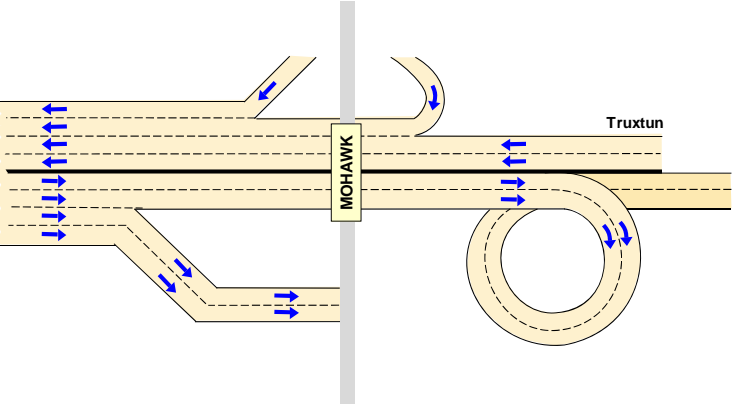
| State Route 58 Westbound |         | MAINLINE | WEST BELTWAY |          |       |          |        | MAINLINE | ALLEN ROAD |          |        | MAINLINE | CALLOWAY DRIVE |          |        |          |       | MAINLINE | COFFEE ROAD |          |       |          |        | MAINLINE |
|--------------------------|---------|----------|--------------|----------|-------|----------|--------|----------|------------|----------|--------|----------|----------------|----------|--------|----------|-------|----------|-------------|----------|-------|----------|--------|----------|
| NO-BUILD<br>ALTERNATIVE  | AM Peak | 1,550    | ON           | MAINLINE | ON    | MAINLINE | OFF    | 1,925    | ON         | MAINLINE | OFF    | 2,550    | ON             | MAINLINE | OFF    | MAINLINE | OFF   | 2,977    | ON          | MAINLINE | ON    | MAINLINE | OFF    | 2,962    |
|                          | PM Peak | 2,305    | 290          | 1,260    | 395   | 1,575    | 1,060  | 3,285    | 225        | 1,700    | 850    | 4,835    | 465            | 2,085    | 580    | 2,665    | 312   | 5,375    | 645         | 2,332    | 555   | 1,777    | 1,185  | 4,585    |
|                          | ADT     | 27,240   | 5,955        | 21,285   | 6,185 | 25,810   | 16,690 | 31,790   | 2,615      | 29,175   | 20,705 | 49,880   | 12,330         | 37,550   | 10,545 | 48,095   | 6,486 | 54,580   | 10,565      | 44,015   | 7,860 | 36,155   | 16,215 | 52,370   |



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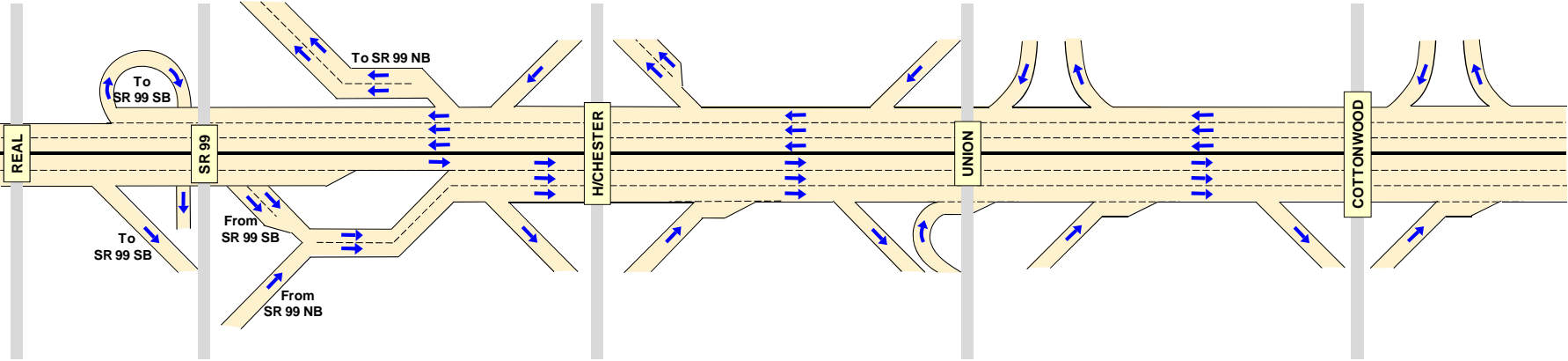
| State Route 58 Eastbound |         | MAINLINE | WEST BELTWAY |          |        |          |       | MAINLINE | ALLEN ROAD |          |        | MAINLINE | CALLOWAY DRIVE |          |       |          |        | MAINLINE | COFFEE ROAD |          |       |          |       | MAINLINE |
|--------------------------|---------|----------|--------------|----------|--------|----------|-------|----------|------------|----------|--------|----------|----------------|----------|-------|----------|--------|----------|-------------|----------|-------|----------|-------|----------|
| NO-BUILD<br>ALTERNATIVE  | AM Peak | 2,190    | OFF          | MAINLINE | ON     | MAINLINE | ON    | 3,124    | OFF        | MAINLINE | ON     | 4,739    | OFF            | MAINLINE | ON    | MAINLINE | ON     | 5,029    | OFF         | MAINLINE | ON    | MAINLINE | ON    | 3,778    |
|                          | PM Peak | 2,180    | 800          | 1,725    | 1,185  | 2,910    | 550   | 2,245    | 195        | 2,929    | 1,810  | 3,675    | 1,108          | 3,631    | 484   | 4,115    | 914    | 3,889    | 2,185       | 2,844    | 385   | 3,229    | 550   | 3,090    |
|                          | ADT     | 28,010   | 10,835       | 21,675   | 12,190 | 33,865   | 1,960 | 31,325   | 2,575      | 28,750   | 21,980 | 50,730   | 13,170         | 37,560   | 5,115 | 42,675   | 11,125 | 53,800   | 22,365      | 31,435   | 6,555 | 37,990   | 4,615 | 42,605   |

| MOHAWK STREET/TRUXTUN AVENUE |          |           |          |            |
|------------------------------|----------|-----------|----------|------------|
| MOHAWK ON                    | MAINLINE | MOHAWK ON | MAINLINE | TRUXTUN ON |
| 1,005                        | 1,957    | 835       | 1,122    | 1,122      |
| 1,415                        | 3,170    | 1,250     | 1,920    | 1,920      |
| 18,450                       | 33,920   | 16,825    | 17,095   | 17,095     |



| MOHAWK STREET/TRUXTUN AVENUE |             |
|------------------------------|-------------|
| MOHAWK OFF                   | TRUXTUN OFF |
| 1,900                        | 1,878       |
| 1,545                        | 1,545       |
| 20,900                       | 21,705      |

| STATE ROUTE 99 SYSTEM INTERCHANGE |        |          |        | MAINLINE | H ST/CHESTER AVE |          |        | MAINLINE | UNION AVENUE |          |       |          |        | MAINLINE | COTTONWOOD ROAD |          |       | MAINLINE | State Route 58 WB |                         |
|-----------------------------------|--------|----------|--------|----------|------------------|----------|--------|----------|--------------|----------|-------|----------|--------|----------|-----------------|----------|-------|----------|-------------------|-------------------------|
| TO REAL RD OFF                    | OFF    | MAINLINE | OFF    |          | ON               | MAINLINE | OFF    |          | ON           | MAINLINE | ON    | MAINLINE | OFF    |          | ON              | MAINLINE | OFF   |          |                   |                         |
| 930                               | 1,550  | 2,480    | 1,785  | 4,265    | 405              | 3,860    | 735    | 4,595    | 400          | 4,195    | 220   | 3,975    | 880    | 4,855    | 240             | 4,615    | 255   | 4,870    | AM Peak           | NO-BUILD<br>ALTERNATIVE |
| 1,085                             | 1,755  | 2,840    | 1,715  | 4,555    | 595              | 3,960    | 645    | 4,605    | 555          | 4,050    | 395   | 3,655    | 595    | 4,250    | 400             | 3,850    | 240   | 4,090    | PM Peak           |                         |
| 17,870                            | 19,960 | 37,830   | 22,555 | 60,385   | 9,880            | 50,505   | 14,760 | 65,265   | 9,165        | 56,100   | 5,310 | 50,790   | 12,650 | 63,440   | 5,570           | 57,870   | 3,600 | 61,470   | ADT               |                         |



| STATE ROUTE 99 SYSTEM INTERCHANGE |  |        |  | MAINLINE | H ST/CHESTER AVE |          |        | MAINLINE | UNION AVENUE |          |       |          |       | MAINLINE | COTTONWOOD ROAD |          |       | MAINLINE | State Route 58 WB |                         |
|-----------------------------------|--|--------|--|----------|------------------|----------|--------|----------|--------------|----------|-------|----------|-------|----------|-----------------|----------|-------|----------|-------------------|-------------------------|
| FROM REAL RD ON                   |  | ON     |  |          | OFF              | MAINLINE | ON     |          | OFF          | MAINLINE | ON    | MAINLINE | ON    |          | OFF             | MAINLINE | ON    |          |                   | NO-BUILD<br>ALTERNATIVE |
| 1,345                             |  | 3,505  |  |          | 545              | 4,305    | 595    |          | 915          | 3,985    | 300   | 4,285    | 275   |          | 550             | 4,010    | 305   |          | 4,315             |                         |
| 1,195                             |  | 3,390  |  |          | 475              | 4,110    | 840    |          | 645          | 4,305    | 770   | 5,075    | 635   |          | 600             | 5,110    | 485   |          | 5,595             |                         |
| 10,947                            |  | 51,251 |  |          | 11,675           | 50,523   | 13,735 |          | 13,115       | 51,143   | 9,085 | 60,228   | 6,025 |          | 6,615           | 59,638   | 5,085 |          | 64,723            | ADT                     |

Figure 4-6: Year 2038 No-Build Alternative Freeway Lane Configuration and Forecast Traffic Volumes (1 of 2)

B. State Route 99

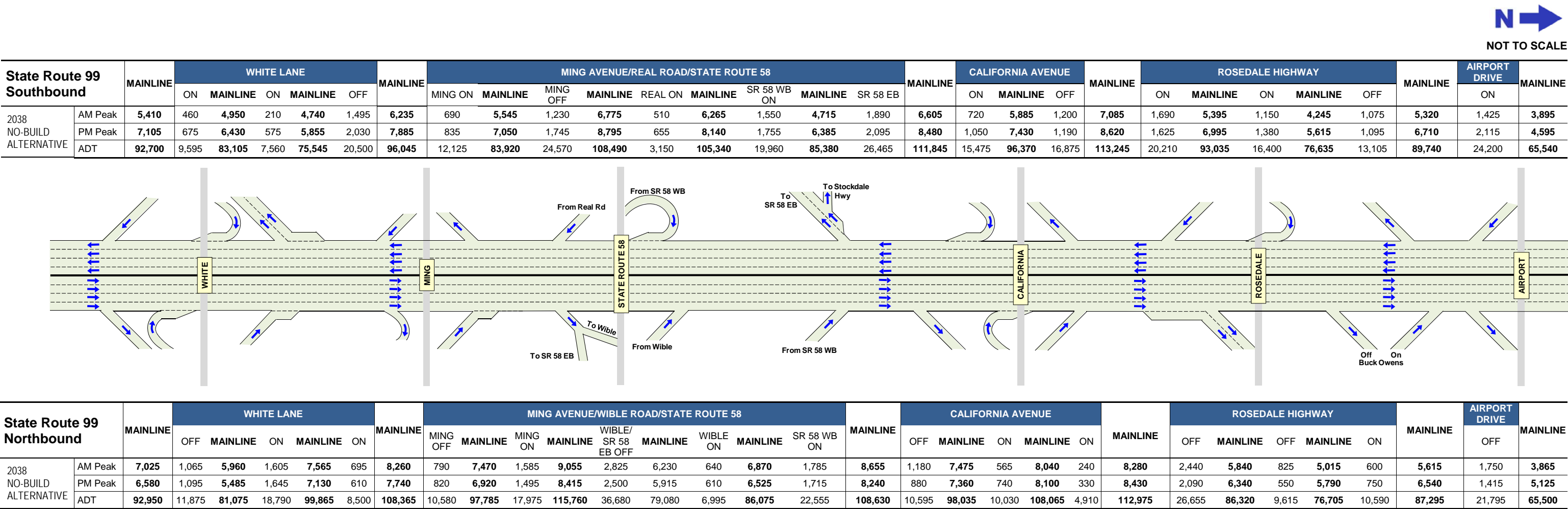


Figure 4-6: 2038 No-Build Alternative Freeway Lane Configuration and Forecast Traffic Volumes (2 of 2)

Table 4-8 presents AM peak hour measures of effectiveness performance data for the freeway mainline segments while Table 4-9 presents PM peak hour measures of effectiveness. Segments with level of service E or F performance in the design year of 2038 are highlighted.

Insofar as year 2038 AM peak hour traffic operations, Table 4-8 indicates that all segments along the Westside Parkway operate at LOS D or better, with served volumes nearly equaling the demand volumes (95 percent or higher). Regarding State Route 58 east of State Route 99, all segments are expected to operate at LOS D or better. Along State Route 99, year 2038 traffic congestion prevails in the northbound direction from south of White Lane to State Route 58. This congestion creates a bottleneck condition whereby the traffic volumes served are significantly lower than demand volumes (70 to 82 percent). Southbound, all segments operate at LOS D or better.

During the PM peak hour, Table 4-9 indicates that all segments along the Westside Parkway are expected to operate at LOS C or better in year 2038, with served volumes nearly equaling demand volumes (91 percent or higher). Along State Route 58 east of State Route 99, all but two freeway segments will operate at LOS D or better. Bottleneck conditions along State Route 99 will affect traffic flows to and from State Route 58 east. As with the AM conditions, PM LOS F conditions are expected along State Route 99 in the northbound direction from White Lane to State Route 58. Southbound, four segments are expected to operate at LOS E and two segments will operate at LOS F. The volume of traffic served will be significantly lower than the demand volume in the northbound direction as of year 2038 (below 90 percent).

In addition to analyzing freeway mainline segments, freeway merging/diverging conditions and on-ramp and off-ramp performance of the freeways were analyzed using the same CORSIM traffic simulation model. These results are reported in Tables 4-10 through 4-13. In cases where a low percentage of on-ramp traffic is served, such as the White Lane loop on-ramp to northbound State Route 99, traffic would be expected to spill back onto local streets until such time that motorists divert to alternate routes.

Traffic level of service at ramp termini and study area intersections are reported in Table 4-14 for no-build conditions. The locations of the study intersections are illustrated on Figure 4-3 and the proposed traffic lane geometric configurations and demand traffic volumes are illustrated on Figure 3-8. For the ramp terminal and other study intersections reported in Table 4-14, under year 2038 conditions, all intersections perform at LOS D or better except for 11 of 79 study intersections during the AM peak hour and 22 locations during the PM peak hour (9 with LOS E and 13 with LOS F).

These conditions are expected, due in part to freeway mainline constraints spilling back onto the arterial street system, as well as the overall intensity of land development located at the nodes of high volume freeway interchanges with arterial streets.

Detailed level of service input parameters and output results are provided in Volume II (part 1 of 2) of this report.

Table 4-8. AM Peak Hour Measures of Effectiveness for the No-Build Alternative—Freeway Mainline Segments

| FREEWAY SEGMENT   | YEAR 2018          |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  | YEAR 2038       |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |  |
|---|--------------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|----------------------|---------------------------------|---------------------------|---------------------------|---------------------------|--|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|----------------------|---------------------------------|---------------------------|---------------------------|---------------------------|--|--|
|   | DEMAND<br>(vph)    | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM<br>2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/ LANES<br>(vph) | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM<br>2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/ LANES<br>(vph) |  |
| State Route 99 NB Mainline  |                    |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |                 |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |  |
| SR 99 NB south end of the network to White Lane off-ramp                                    | 4,940              | 4,940           | 100%        | 50                          | 1                          | 63             | 20                     | C                    | 50                              | 4346                      | 69                        | 2                         | 1237                                     | 7,025           | 6,570           | 94%         | 86                          | 36                         | 38             | 44                     | E                    | 86                              | 5886                      | 156                       | 66                        | 1643                                     |  |
| White Lane off-ramp to White Lane loop on-ramp  | 4,260              | 4,242           | 100%        | 19                          | 1                          | 63             | 17                     | B                    | 69                              | 1420                      | 23                        | 1                         | 1061                                     | 5,960           | 5,527           | 93%         | 30                          | 11                         | 41             | 34                     | D                    | 115                             | 1850                      | 46                        | 17                        | 1382                                     |  |
| White Lane loop on-ramp to White Lane direct on-ramp  | 5,850              | 5,156           | 88%         | 7                           | 1                          | 56             | 23                     | C                    | 76                              | 542                       | 10                        | 1                         | 1289                                     | 7,565           | 5,850           | 77%         | 14                          | 8                          | 28             | 53                     | F                    | 129                             | 615                       | 22                        | 13                        | 1463                                     |  |
| White Lane diagonal on-ramp to Ming Avenue off-ramp   | 6,540              | 5,977           | 91%         | 76                          | 5                          | 60             | 25                     | C                    | 152                             | 7566                      | 126                       | 9                         | 1494                                     | 8,260           | 6,159           | 75%         | 197                         | 125                        | 23             | 66                     | F                    | 326                             | 7838                      | 337                       | 214                       | 1540                                     |  |
| Ming Avenue off-ramp to Ming Avenue on-ramp   | 6,025              | 5,519           | 92%         | 34                          | 10                         | 51             | 28                     | D                    | 185                             | 2658                      | 52                        | 15                        | 1380                                     | 7,470           | 5,204           | 70%         | 85                          | 59                         | 18             | 72                     | F                    | 411                             | 2232                      | 123                       | 85                        | 1301                                     |  |
| Ming Avenue on-ramp to SR 58 EB/Wible Road off-ramp   | 7,345              | 6,867           | 93%         | 19                          | 8                          | 33             | 45                     | F                    | 204                             | 1205                      | 36                        | 16                        | 1717                                     | 9,055           | 6,807           | 75%         | 20                          | 9                          | 32             | 47                     | F                    | 431                             | 1194                      | 37                        | 17                        | 1702                                     |  |
| SR 58 EB/Wible Road off-ramp to Wible Road on-ramp  | 5,240              | 4,775           | 91%         | 32                          | 2                          | 62             | 19                     | C                    | 236                             | 2614                      | 42                        | 2                         | 1194                                     | 6,230           | 4,624           | 74%         | 32                          | 2                          | 61             | 19                     | C                    | 463                             | 2531                      | 41                        | 2                         | 1156                                     |  |
| Wible Road on-ramp to SR 58 WB on-ramp  | 5,830              | 5,272           | 90%         | 9                           | 0                          | 61             | 21                     | C                    | 246                             | 843                       | 14                        | 1                         | 1318                                     | 6,870           | 5,135           | 75%         | 9                           | 1                          | 61             | 21                     | C                    | 472                             | 820                       | 13                        | 1                         | 1284                                     |  |
| SR 58 WB on-ramp to California Avenue off-ramp  | 7,115              | 6,551           | 92%         | 35                          | 4                          | 59             | 27                     | D                    | 281                             | 3753                      | 64                        | 6                         | 1638                                     | 8,655           | 6,950           | 80%         | 36                          | 4                          | 58             | 29                     | D                    | 508                             | 4020                      | 69                        | 8                         | 1738                                     |  |
| California Avenue off-ramp to California Avenue loop on-ramp                                | 5,970              | 5,524           | 93%         | 16                          | 1                          | 62             | 22                     | C                    | 297                             | 1560                      | 25                        | 1                         | 1381                                     | 7,475           | 5,982           | 80%         | 16                          | 1                          | 62             | 24                     | C                    | 525                             | 1689                      | 27                        | 1                         | 1496                                     |  |
| California Avenue loop on-ramp to California Avenue diagonal on-ramp                        | 6,505              | 6,007           | 92%         | 9                           | 1                          | 61             | 25                     | C                    | 306                             | 893                       | 15                        | 1                         | 1502                                     | 8,040           | 6,396           | 80%         | 9                           | 1                          | 60             | 26                     | D                    | 534                             | 951                       | 16                        | 1                         | 1599                                     |  |
| California Avenue diagonal on-ramp to Rosedale Highway off-ramp                             | 6,740              | 5,959           | 88%         | 32                          | 2                          | 60             | 23                     | C                    | 338                             | 3128                      | 52                        | 3                         | 1324                                     | 8,280           | 6,349           | 77%         | 32                          | 2                          | 60             | 25                     | C                    | 565                             | 3333                      | 56                        | 3                         | 1411                                     |  |
| Rosedale Highway off-ramp to Buck Owens Boulevard/Sillect Avenue off-ramp                   | 4,590              | 4,217           | 92%         | 17                          | 1                          | 62             | 17                     | B                    | 354                             | 1198                      | 19                        | 1                         | 1054                                     | 5,840           | 4,599           | 79%         | 17                          | 1                          | 62             | 19                     | C                    | 582                             | 1307                      | 21                        | 1                         | 1150                                     |  |
| Buck Owens Boulevard/Sillect Avenue off-ramp to Buck Owens Boulevard/Sillect Avenue on-ramp | 3,765              | 3,458           | 92%         | 24                          | 1                          | 63             | 14                     | B                    | 378                             | 1437                      | 23                        | 1                         | 865                                      | 5,015           | 3,917           | 78%         | 24                          | 1                          | 63             | 16                     | B                    | 606                             | 1628                      | 26                        | 1                         | 979                                      |  |
| Buck Owens Boulevard/Sillect Avenue on-ramp to Airport Drive off-ramp                       | 4,150              | 3,824           | 92%         | 33                          | 2                          | 61             | 16                     | B                    | 411                             | 2173                      | 35                        | 2                         | 956                                      | 5,615           | 4,451           | 79%         | 34                          | 2                          | 61             | 18                     | C                    | 639                             | 2531                      | 42                        | 3                         | 1113                                     |  |
| Airport Drive off-ramp to SR 99 NB north end of the network                                 | 2,615              | 2,411           | 92%         | 40                          | 1                          | 63             | 9                      | A                    | 451                             | 1702                      | 27                        | 1                         | 603                                      | 3,865           | 3,168           | 82%         | 40                          | 1                          | 63             | 13                     | B                    | 680                             | 2237                      | 35                        | 1                         | 792                                      |  |
| State Route 99 SB Mainline  |                    |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |                 |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |  |
| SR 99 SB north end of the network to Airport Drive on-ramp                                  | 3,195              | 3,195           | 100%        | 48                          | 1                          | 64             | 13                     | B                    | 48                              | 2741                      | 43                        | 1                         | 804                                      | 3,895           | 3,895           | 100%        | 48                          | 1                          | 64             | 15                     | B                    | 48                              | 3342                      | 52                        | 1                         | 980                                      |  |
| Airport Drive on-ramp to Rosedale Highway off-ramp  | 4,460              | 4,455           | 100%        | 31                          | 2                          | 61             | 18                     | C                    | 79                              | 2379                      | 39                        | 2                         | 1114                                     | 5,320           | 5,320           | 100%        | 32                          | 3                          | 60             | 22                     | C                    | 80                              | 2859                      | 48                        | 4                         | 1332                                     |  |
| Rosedale Highway off-ramp to Rosedale Highway loop on-ramp                                  | 3,800              | 3,800           | 100%        | 25                          | 1                          | 63             | 15                     | B                    | 104                             | 1637                      | 26                        | 1                         | 952                                      | 4,245           | 4,245           | 100%        | 25                          | 1                          | 63             | 17                     | B                    | 105                             | 1848                      | 30                        | 1                         | 1074                                     |  |
| Rosedale Highway loop on-ramp to Rosedale Highway diagonal on-ramp                          | 4,700              | 4,700           | 100%        | 9                           | 1                          | 58             | 18                     | B                    | 113                             | 719                       | 12                        | 1                         | 1187                                     | 5,395           | 5,395           | 100%        | 9                           | 1                          | 59             | 19                     | C                    | 114                             | 833                       | 14                        | 1                         | 1375                                     |  |
| Rosedale Highway diagonal on-ramp to California Avenue off-ramp                             | 5,880              | 5,880           | 100%        | 38                          | 4                          | 58             | 25                     | C                    | 152                             | 3608                      | 63                        | 7                         | 1476                                     | 7,085           | 7,085           | 100%        | 40                          | 6                          | 55             | 30                     | D                    | 155                             | 4460                      | 81                        | 13                        | 1798                                     |  |
| California Avenue off-ramp to California Avenue on-ramp                                     | 4,775              | 4,770           | 100%        | 13                          | 1                          | 62             | 19                     | C                    | 165                             | 1111                      | 18                        | 1                         | 1193                                     | 5,885           | 5,885           | 100%        | 14                          | 1                          | 62             | 23                     | C                    | 168                             | 1379                      | 22                        | 1                         | 1482                                     |  |
| California Avenue on-ramp to SR 58 EB/Stockdale Highway off-ramp                            | 5,200              | 5,179           | 100%        | 28                          | 2                          | 59             | 21                     | C                    | 193                             | 2388                      | 40                        | 3                         | 1295                                     | 6,605           | 6,605           | 100%        | 30                          | 5                          | 55             | 27                     | D                    | 199                             | 3076                      | 56                        | 8                         | 1657                                     |  |
| SR 58 EB/Stockdale Highway off-ramp to SR 58 WB on-ramp                                     | 3,555              | 3,555           | 100%        | 40                          | 1                          | 63             | 14                     | B                    | 233                             | 2504                      | 40                        | 1                         | 890                                      | 4,715           | 4,715           | 100%        | 41                          | 2                          | 62             | 18                     | B                    | 239                             | 3326                      | 53                        | 2                         | 1182                                     |  |
| SR 58 WB on-ramp to Real Road on-ramp   | 4,840              | 4,484           | 93%         | 5                           | 1                          | 51             | 22                     | C                    | 238                             | 323                       | 6                         | 1                         | 1121                                     | 6,265           | 5,829           | 93%         | 6                           | 2                          | 52             | 34                     | D                    | 245                             | 420                       | 10                        | 4                         | 1457                                     |  |
| Real Road on-ramp to Ming Avenue off-ramp   | 5,230              | 5,110           | 98%         | 23                          | 2                          | 58             | 20                     | C                    | 261                             | 1877                      | 32                        | 3                         | 1277                                     | 6,775           | 6,721           | 99%         | 24                          | 4                          | 54             | 28                     | D                    | 270                             | 2469                      | 45                        | 7                         | 1680                                     |  |
| Ming Avenue off-ramp to Ming Avenue on-ramp   | 4,230              | 4,106           | 97%         | 35                          | 1                          | 63             | 16                     | B                    | 296                             | 2525                      | 40                        | 1                         | 1026                                     | 5,545           | 5,410           | 98%         | 36                          | 1                          | 62             | 21                     | C                    | 305                             | 3327                      | 53                        | 2                         | 1353                                     |  |
| Ming Avenue on-ramp to White Lane off-ramp  | 4,725              | 4,598           | 97%         | 60                          | 3                          | 62             | 18                     | B                    | 356                             | 4714                      | 76                        | 3                         | 1150                                     | 6,235           | 6,043           | 97%         | 60                          | 3                          | 61             | 24                     | C                    | 366                             | 6198                      | 101                       | 6                         | 1511                                     |  |
| White Lane off-ramp to White Lane loop on-ramp  | 3,360              | 3,248           | 97%         | 19                          | 0                          | 63             | 13                     | B                    | 375                             | 1089                      | 17                        | 0                         | 812                                      | 4,740           | 4,628           | 98%         | 19                          | 1                          | 63             | 18                     | C                    | 385                             | 1552                      | 25                        | 1                         | 1157                                     |  |
| White Lane loop on-ramp to White Lane diagonal on-ramp                                      | 3,540              | 3,411           | 96%         | 10                          | 0                          | 63             | 14                     | B                    | 385                             | 577                       | 9                         | 0                         | 853                                      | 4,950           | 4,828           | 98%         | 10                          | 0                          | 62             | 19                     | C                    | 395                             | 818                       | 13                        | 1                         | 1207                                     |  |
| White Lane diagonal on-ramp to SR 99 SB south end of the network                            | 3,890              | 3,581           | 92%         | 52                          | 1                          | 63             | 14                     | B                    | 436                             | 3239                      | 51                        | 1                         | 895                                      | 5,410           | 4,952           | 92%         | 52                          | 2                          | 62             | 20                     | C                    | 447                             | 4478                      | 72                        | 3                         | 1238                                     |  |
| Westside Parkway EB Mainline  |                    |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |                 |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |  |
| Westside Parkway west end of the network to West Beltway off-ramp                           | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  | 2,190           | 2,190           | 100%        | 6                           | 2                          | 47             | 24                     | C                    | 6                               | 183                       | 4                         | 1                         | 1117                                     |  |
| West Beltway off-ramp to West Beltway loop on-ramp  | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  | 1,390           | 1,341           | 96%         | 14                          | 1                          | 61             | 11                     | B                    | 20                              | 315                       | 5                         | 0                         | 671                                      |  |
| West Beltway loop on-ramp to West Beltway diagonal on-ramp                                  | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  | 2,574           | 2,518           | 98%         | 9                           | 1                          | 61             | 14                     | B                    | 29                              | 393                       | 6                         | 0                         | 839                                      |  |
| West Beltway diagonal on-ramp to Allen Road off-ramp  | 835                | 779             | 93%         | 55                          | 1                          | 64             | 4                      | A                    | 55                              | 766                       | 12                        | 0                         | 260                                      | 3,124           | 3,031           | 97%         | 56                          | 2                          | 63             | 16                     | B                    | 86                              | 2981                      | 48                        | 1                         | 1010                                     |  |
| Allen Road off-ramp to Allen Road on-ramp   | 770                | 740             | 96%         | 115                         | 3                          | 62             | 5                      | A                    | 170                             | 1461                      | 24                        | 1                         | 247                                      | 2,929           | 2,842           | 97%         | 33                          | 1                          | 63             | 15                     | B                    | 118                             | 1618                      | 26                        | 1                         | 947                                      |  |
| Allen Road on-ramp to Calloway Drive off-ramp   | 2,195              | 2,133           | 97%         | 58                          | 2                          | 63             | 11                     | B                    | 228                             | 2160                      | 34                        | 1                         | 711                                      | 4,739           | 4,642           | 98%         | 61                          | 5                          | 60             | 26                     | C                    | 179                             | 4720                      | 78                        | 6                         | 1547                                     |  |
| Calloway Drive off-ramp to Calloway Drive loop on-ramp                                      | 1,690              | 1,681           | 99%         | 24                          | 0                          | 64             | 9                      | A                    | 252                             | 728                       | 11                        | 0                         | 560                                      | 3,631           | 3,583           | 99%         | 25                          | 1                          | 63             | 19                     | C                    | 204                             | 1553                      | 25                        | 1                         | 1194                                     |  |
| Calloway Drive loop on-ramp to Calloway Drive diagonal on-ramp                              | 2,155              | 2,080           | 97%         | 11                          | 0                          | 63             | 11                     | B                    | 263                             | 394                       | 6                         | 0                         | 693                                      | 4,115           | 4,034           | 98%         | 11                          | 1                          | 62             | 22                     | C                    | 215                             | 764                       | 12                        | 1                         | 1345                                     |  |
| Calloway Drive diagonal on-ramp to Coffee Road off-ramp                                     | 3,210              | 3,148           | 98%         | 49                          | 3                          | 61             | 17                     | B                    | 312                             | 2616                      | 43                        | 3                         | 1049                                     | 5,029           | 4,989           | 99%         | 51                          | 5                          | 59             | 28                     | D                    | 266                             | 4154                      | 71                        | 7                         | 1663                                     |  |
| Coffee Road off-ramp to Coffee Road loop on-ramp  | 1,985              | 1,921           | 97%         | 23                          | 0                          | 64             | 10                     | A                    | 335                             | 768                       | 12                        | 0                         | 640                                      | 2,844           | 2,844           | 100%        | 23                          | 1                          | 64             | 15                     | B                    | 289                             | 1154                      | 18                        | 0                         | 962                                      |  |
| Coffee Road loop on-ramp to Coffee Road diagonal on-ramp                                    | 2,300              | 2,212           | 96%         | 11                          | 0                          | 64             | 9                      | A                    | 345                             | 419                       | 7                         | 0                         |  |                 |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |  |  |

Table 4-9. PM Peak Hour Measures of Effectiveness for the No-Build Alternative—Freeway Mainline Segments

| FREEWAY SEGMENT   | YEAR 2018          |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   | YEAR 2038       |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |  |
|---|--------------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|----------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|----------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|--|
|   | DEMAND<br>(vph)    | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM<br>2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/LANES<br>(vph) | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM<br>2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/LANES<br>(vph) |  |
| State Route 99 NB Mainline  |                    |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |  |
| SR 99 NB south end of the network to White Lane off-ramp                                    | 4,590              | 4,604           | 100%        | 50                          | 1                          | 63             | 18                     | C                    | 50                              | 4043                      | 64                        | 2                         | 1151                                    | 6,580           | 6,570           | 100%        | 52                          | 4                          | 60             | 28                     | D                    | 52                              | 5698                      | 95                        | 6                         | 1642                                    |  |
| White Lane off-ramp to White Lane loop on-ramp  | 3,905              | 3,899           | 100%        | 19                          | 1                          | 63             | 15                     | B                    | 69                              | 1305                      | 21                        | 1                         | 975                                     | 5,485           | 5,360           | 98%         | 21                          | 2                          | 59             | 23                     | C                    | 73                              | 1795                      | 31                        | 3                         | 1340                                    |  |
| White Lane loop on-ramp to White Lane direct on-ramp  | 5,360              | 5,139           | 96%         | 7                           | 1                          | 57             | 23                     | C                    | 76                              | 540                       | 10                        | 1                         | 1285                                    | 7,130           | 6,226           | 87%         | 8                           | 2                          | 47             | 33                     | C                    | 81                              | 655                       | 14                        | 4                         | 1557                                    |  |
| White Lane diagonal on-ramp to Ming Avenue off-ramp   | 5,915              | 5,875           | 99%         | 75                          | 5                          | 61             | 24                     | C                    | 151                             | 7434                      | 123                       | 8                         | 1469                                    | 7,740           | 6,805           | 88%         | 152                         | 81                         | 31             | 57                     | F                    | 233                             | 8911                      | 287                       | 153                       | 1701                                    |  |
| Ming Avenue off-ramp to Ming Avenue on-ramp   | 5,290              | 5,290           | 100%        | 28                          | 4                          | 58             | 23                     | C                    | 179                             | 2373                      | 41                        | 6                         | 1331                                    | 6,920           | 5,857           | 85%         | 76                          | 51                         | 20             | 73                     | F                    | 309                             | 2515                      | 124                       | 83                        | 1464                                    |  |
| Ming Avenue on-ramp to SR 58 EB/Wible Road off-ramp   | 6,535              | 6,535           | 100%        | 17                          | 6                          | 38             | 38                     | E                    | 195                             | 1151                      | 30                        | 11                        | 1640                                    | 8,415           | 7,374           | 88%         | 19                          | 8                          | 34             | 48                     | F                    | 328                             | 1293                      | 38                        | 16                        | 1844                                    |  |
| SR 58 EB/Wible Road off-ramp to Wible Road on-ramp  | 4,630              | 4,630           | 100%        | 32                          | 1                          | 62             | 19                     | C                    | 227                             | 2554                      | 41                        | 2                         | 1166                                    | 5,915           | 5,185           | 88%         | 32                          | 2                          | 61             | 21                     | C                    | 360                             | 2838                      | 47                        | 3                         | 1296                                    |  |
| Wible Road on-ramp to SR 58 WB on-ramp  | 5,240              | 5,190           | 99%         | 9                           | 1                          | 61             | 21                     | C                    | 237                             | 830                       | 14                        | 1                         | 1298                                    | 6,525           | 5,683           | 87%         | 9                           | 1                          | 61             | 23                     | C                    | 370                             | 908                       | 15                        | 1                         | 1421                                    |  |
| SR 58 WB on-ramp to California Avenue off-ramp  | 6,670              | 6,611           | 99%         | 35                          | 3                          | 59             | 27                     | D                    | 272                             | 3797                      | 64                        | 6                         | 1653                                    | 8,240           | 7,383           | 90%         | 36                          | 4                          | 58             | 31                     | D                    | 405                             | 4260                      | 73                        | 8                         | 1846                                    |  |
| California Avenue off-ramp to California Avenue loop on-ramp                                | 5,900              | 5,832           | 99%         | 16                          | 1                          | 62             | 24                     | C                    | 288                             | 1647                      | 27                        | 1                         | 1458                                    | 7,360           | 6,598           | 90%         | 17                          | 1                          | 61             | 27                     | D                    | 422                             | 1863                      | 30                        | 2                         | 1650                                    |  |
| California Avenue loop on-ramp to California Avenue diagonal on-ramp                        | 6,590              | 6,435           | 98%         | 9                           | 1                          | 60             | 27                     | D                    | 297                             | 957                       | 16                        | 1                         | 1609                                    | 8,100           | 7,058           | 87%         | 9                           | 1                          | 60             | 29                     | D                    | 431                             | 1049                      | 17                        | 1                         | 1765                                    |  |
| California Avenue diagonal on-ramp to Rosedale Highway off-ramp                             | 6,910              | 6,507           | 94%         | 32                          | 2                          | 59             | 26                     | C                    | 329                             | 3397                      | 58                        | 4                         | 1446                                    | 8,430           | 7,026           | 83%         | 32                          | 3                          | 58             | 28                     | D                    | 463                             | 3654                      | 63                        | 5                         | 1561                                    |  |
| Rosedale Highway off-ramp to Buck Owens Boulevard/Sillect Avenue off-ramp                   | 5,060              | 4,889           | 97%         | 16                          | 1                          | 62             | 20                     | C                    | 345                             | 1389                      | 22                        | 1                         | 1222                                    | 6,340           | 5,365           | 85%         | 17                          | 1                          | 62             | 22                     | C                    | 480                             | 1524                      | 25                        | 1                         | 1341                                    |  |
| Buck Owens Boulevard/Sillect Avenue off-ramp to Buck Owens Boulevard/Sillect Avenue on-ramp | 4,660              | 4,469           | 96%         | 24                          | 1                          | 63             | 18                     | B                    | 369                             | 1857                      | 30                        | 1                         | 1117                                    | 5,790           | 4,923           | 85%         | 24                          | 1                          | 62             | 20                     | C                    | 504                             | 2046                      | 33                        | 1                         | 1231                                    |  |
| Buck Owens Boulevard/Sillect Avenue on-ramp to Airport Drive off-ramp                       | 5,280              | 5,065           | 96%         | 34                          | 2                          | 60             | 21                     | C                    | 403                             | 2879                      | 48                        | 3                         | 1266                                    | 6,540           | 5,607           | 86%         | 34                          | 3                          | 60             | 24                     | C                    | 538                             | 3187                      | 53                        | 4                         | 1402                                    |  |
| Airport Drive off-ramp to SR 99 NB north end of the network                                 | 3,935              | 3,764           | 96%         | 40                          | 1                          | 63             | 15                     | B                    | 443                             | 2657                      | 42                        | 1                         | 941                                     | 5,125           | 4,390           | 86%         | 41                          | 2                          | 62             | 18                     | B                    | 579                             | 3100                      | 50                        | 2                         | 1097                                    |  |
| State Route 99 SB Mainline  |                    |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |  |
| SR 99 SB north end of the network to Airport Drive on-ramp                                  | 3,520              | 3,520           | 100%        | 48                          | 1                          | 64             | 14                     | B                    | 48                              | 3013                      | 47                        | 1                         | 883                                     | 4,595           | 4,595           | 100%        | 49                          | 2                          | 63             | 18                     | C                    | 49                              | 3957                      | 63                        | 2                         | 1155                                    |  |
| Airport Drive on-ramp to Rosedale Highway off-ramp  | 5,275              | 5,275           | 100%        | 32                          | 3                          | 60             | 22                     | C                    | 80                              | 2836                      | 47                        | 4                         | 1326                                    | 6,710           | 6,412           | 96%         | 46                          | 17                         | 42             | 39                     | E                    | 96                              | 3440                      | 83                        | 30                        | 1603                                    |  |
| Rosedale Highway off-ramp to Rosedale Highway loop on-ramp                                  | 4,600              | 4,600           | 100%        | 25                          | 1                          | 62             | 18                     | C                    | 105                             | 1982                      | 32                        | 1                         | 1152                                    | 5,615           | 5,417           | 96%         | 26                          | 2                          | 60             | 23                     | C                    | 121                             | 2329                      | 39                        | 3                         | 1354                                    |  |
| Rosedale Highway loop on-ramp to Rosedale Highway diagonal on-ramp                          | 5,905              | 5,905           | 100%        | 12                          | 3                          | 46             | 28                     | D                    | 116                             | 916                       | 20                        | 5                         | 1511                                    | 6,995           | 6,891           | 99%         | 12                          | 3                          | 47             | 32                     | D                    | 133                             | 1044                      | 22                        | 6                         | 1723                                    |  |
| Rosedale Highway diagonal on-ramp to California Avenue off-ramp                             | 7,240              | 7,240           | 100%        | 41                          | 7                          | 55             | 33                     | D                    | 157                             | 4661                      | 85                        | 15                        | 1867                                    | 8,620           | 8,240           | 96%         | 43                          | 9                          | 52             | 39                     | E                    | 176                             | 5035                      | 97                        | 20                        | 2060                                    |  |
| California Avenue off-ramp to California Avenue on-ramp                                     | 6,155              | 6,155           | 100%        | 14                          | 1                          | 59             | 27                     | D                    | 172                             | 1483                      | 25                        | 2                         | 1593                                    | 7,430           | 7,076           | 95%         | 21                          | 8                          | 40             | 45                     | E                    | 197                             | 1647                      | 41                        | 16                        | 1769                                    |  |
| California Avenue on-ramp to SR 58 EB/Stockdale Highway off-ramp                            | 7,080              | 7,080           | 100%        | 35                          | 9                          | 49             | 36                     | E                    | 207                             | 3450                      | 71                        | 19                        | 1804                                    | 8,480           | 8,048           | 95%         | 39                          | 13                         | 46             | 44                     | E                    | 235                             | 3989                      | 86                        | 28                        | 2012                                    |  |
| SR 58 EB/Stockdale Highway off-ramp to SR 58 WB on-ramp                                     | 5,105              | 5,105           | 100%        | 41                          | 2                          | 62             | 21                     | C                    | 248                             | 3623                      | 58                        | 3                         | 1288                                    | 6,385           | 6,089           | 95%         | 46                          | 7                          | 55             | 28                     | D                    | 281                             | 4282                      | 78                        | 12                        | 1522                                    |  |
| SR 58 WB on-ramp to Real Road on-ramp   | 6,535              | 6,105           | 93%         | 7                           | 3                          | 39             | 39                     | E                    | 254                             | 440                       | 11                        | 5                         | 1526                                    | 8,140           | 7,219           | 89%         | 10                          | 6                          | 26             | 70                     | F                    | 291                             | 521                       | 20                        | 12                        | 1805                                    |  |
| Real Road on-ramp to Ming Avenue off-ramp   | 7,005              | 6,961           | 99%         | 26                          | 5                          | 52             | 32                     | D                    | 280                             | 2564                      | 50                        | 10                        | 1740                                    | 8,795           | 8,258           | 94%         | 32                          | 11                         | 42             | 47                     | F                    | 323                             | 3063                      | 74                        | 26                        | 2065                                    |  |
| Ming Avenue off-ramp to Ming Avenue on-ramp   | 5,380              | 5,346           | 99%         | 36                          | 1                          | 62             | 21                     | C                    | 316                             | 3287                      | 53                        | 2                         | 1337                                    | 7,050           | 6,578           | 93%         | 36                          | 2                          | 61             | 27                     | D                    | 360                             | 4048                      | 67                        | 4                         | 1644                                    |  |
| Ming Avenue on-ramp to White Lane off-ramp  | 6,025              | 6,018           | 100%        | 61                          | 4                          | 61             | 24                     | C                    | 377                             | 6184                      | 102                       | 7                         | 1504                                    | 7,885           | 7,452           | 95%         | 62                          | 5                          | 60             | 30                     | D                    | 422                             | 7664                      | 128                       | 11                        | 1863                                    |  |
| White Lane off-ramp to White Lane loop on-ramp  | 3,995              | 3,995           | 100%        | 19                          | 1                          | 63             | 16                     | B                    | 396                             | 1340                      | 21                        | 1                         | 999                                     | 5,855           | 5,522           | 94%         | 20                          | 1                          | 62             | 22                     | C                    | 441                             | 1851                      | 30                        | 1                         | 1381                                    |  |
| White Lane loop on-ramp to White Lane diagonal on-ramp                                      | 4,490              | 4,446           | 99%         | 10                          | 0                          | 62             | 18                     | B                    | 406                             | 753                       | 12                        | 1                         | 1112                                    | 6,430           | 6,018           | 94%         | 10                          | 1                          | 61             | 25                     | C                    | 451                             | 1019                      | 17                        | 1                         | 1505                                    |  |
| White Lane diagonal on-ramp to SR 99 SB south end of the network                            | 4,940              | 4,739           | 96%         | 52                          | 2                          | 62             | 19                     | C                    | 458                             | 4284                      | 69                        | 3                         | 1185                                    | 7,105           | 6,430           | 90%         | 53                          | 3                          | 61             | 26                     | D                    | 505                             | 5803                      | 95                        | 5                         | 1608                                    |  |
| Westside Parkway EB Mainline  |                    |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |  |
| Westside Parkway west end of the network to West Beltway off-ramp                           | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   | 2,180           | 2,155           | 99%         | 7                           | 2                          | 54             | 24                     | C                    | 7                               | 176                       | 4                         | 1                         | 1078                                    |  |
| West Beltway off-ramp to West Beltway loop on-ramp  | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   | 1,225           | 1,130           | 92%         | 14                          | 1                          | 61             | 9                      | A                    | 21                              | 265                       | 4                         | 0                         | 565                                     |  |
| West Beltway loop on-ramp to West Beltway diagonal on-ramp                                  | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   | 2,100           | 1,985           | 95%         | 9                           | 0                          | 61             | 11                     | A                    | 30                              | 310                       | 5                         | 0                         | 662                                     |  |
| West Beltway diagonal on-ramp to Allen Road off-ramp  | 830                | 783             | 94%         | 83                          | 2                          | 62             | 6                      | A                    | 83                              | 1107                      | 18                        | 0                         | 261                                     | 2,245           | 2,120           | 94%         | 56                          | 2                          | 63             | 11                     | B                    | 86                              | 2085                      | 33                        | 1                         | 707                                     |  |
| Allen Road off-ramp to Allen Road on-ramp   | 745                | 721             | 97%         | 32                          | 0                          | 65             | 4                      | A                    | 114                             | 410                       | 6                         | 0                         | 240                                     | 2,065           | 1,967           | 95%         | 32                          | 1                          | 63             | 10                     | A                    | 118                             | 1120                      | 18                        | 0                         | 656                                     |  |
| Allen Road on-ramp to Calloway Drive off-ramp   | 1,840              | 1,812           | 98%         | 58                          | 2                          | 63             | 10                     | A                    | 172                             | 1836                      | 29                        | 1                         | 604                                     | 3,675           | 3,524           | 96%         | 59                          | 3                          | 61             | 19                     | C                    | 178                             | 3571                      | 58                        | 3                         | 1175                                    |  |
| Calloway Drive off-ramp to Calloway Drive loop on-ramp                                      | 1,405              | 1,405           | 100%        | 24                          | 0                          | 64             | 7                      | A                    | 197                             | 612                       | 10                        | 0                         | 471                                     | 2,746           | 2,627           | 96%         | 25                          | 1                          | 64             | 14                     | B                    | 202                             | 1138                      | 18                        | 0                         | 876                                     |  |
| Calloway Drive loop on-ramp to Calloway Drive diagonal on-ramp                              | 1,745              | 1,710           | 98%         | 11                          | 0                          | 63             | 9                      | A                    | 208                             | 324                       | 5                         | 0                         | 570                                     | 3,127           | 2,974           | 95%         | 11                          | 0                          | 62             | 16                     | B                    | 213                             | 563                       | 9                         | 0                         | 991                                     |  |
| Calloway Drive diagonal on-ramp to Coffee Road off-ramp                                     | 2,605              | 2,567           | 99%         | 48                          | 2                          | 62             | 13                     | B                    | 256                             | 2133                      | 34                        | 2                         | 856                                     | 3,889           | 3,706           | 95%         | 49                          | 3                          | 61             | 20                     | C                    | 262                             | 3074                      | 51                        | 3                         | 1235                                    |  |
| Coffee Road off-ramp to Coffee Road loop on-ramp  | 1,725              | 1,716           | 99%         | 23                          | 0                          | 64             | 9                      | A                    | 278                             | 686                       | 11                        | 0                         | 572                                     | 2,184           | 2,058           | 94%         | 22                          | 0                          | 64             | 11                     | A                    | 285                             | 823                       | 13                        | 0                         | 686                                     |  |
| Coffee Road loop on-ramp to Coffee Road diagonal on-ramp                                    | 2,140              | 2,118           | 99%         | 11                          | 0                          | 63             | 8                      | A                    | 289                             | 401                       | 6                         | 0                         | 530                                     | 2,614           | 2,46            |             |                             |                            |                |                        |                      |                                 |                           |                           |                           |   |  |

Table 4-10. AM Peak Hour Measures of Effectiveness for the No-Build Alternative—Merging/Diverging Conditions

| LOCATION   | ANALYSIS TYPE | YEAR 2018          |                     |                | YEAR 2038   |                     |                |
|--|---------------|--------------------|---------------------|----------------|-------------|---------------------|----------------|
|  |               | SPEED (mph)        | DENSITY (veh/ln/mi) | LOS (HCM 2000) | SPEED (mph) | DENSITY (veh/ln/mi) | LOS (HCM 2000) |
| State Route 99 NB  |               |                    |                     |                |             |                     |                |
| White Lane loop on-ramp                                      | Merging       | 51                 | 27.6                | C              | 16          | 54.7                | E              |
| White Lane diagonal on-ramp                                  | Merging       | 53                 | 32.1                | D              | 16          | 66.4                | F              |
| Ming Avenue on to SR 58/Wible Road off                       | Merging       | 26                 | 64.8                | F              | 22          | 61.0                | F              |
| Wible Road on-ramp   | Merging       | 60                 | 21.2                | C              | 61          | 16.1                | B              |
| SR 58 WB on-ramp   | Merging       | 54                 | 32.1                | D              | 50          | 34.1                | D              |
| California Avenue loop on-ramp                               | Merging       | 59                 | 28.3                | D              | 59          | 28.7                | D              |
| California Avenue diagonal on-ramp                           | Merging       | 58                 | 28.3                | D              | 58          | 29.3                | D              |
| Buck Owens Boulevard/Sillect Avenue on-ramp                  | Merging       | 61                 | 15.7                | B              | 61          | 18.5                | B              |
| White Lane off-ramp  | Diverging     | 62                 | 21.3                | C              | 28          | 48.3                | E              |
| Ming Avenue off-ramp   | Diverging     | 60                 | 28.4                | D              | 11          | 76.0                | F              |
| Ming Avenue on to SR 58/Wible Road off                       | Diverging     | 26                 | 64.8                | F              | 22          | 61.0                | F              |
| California Avenue off-ramp                                   | Diverging     | 58                 | 35.2                | E              | 58          | 34.8                | D              |
| Rosedale Highway off-ramp                                    | Diverging     | 58                 | 24.0                | C              | 58          | 25.0                | C              |
| Buck Owens Boulevard/Sillect Avenue off-ramp                 | Diverging     | 60                 | 19.2                | B              | 60          | 20.1                | C              |
| Airport Drive off-ramp                                       | Diverging     | 58                 | 21.7                | C              | 57          | 24.7                | C              |
| State Route 99 SB  |               |                    |                     |                |             |                     |                |
| Airport Drive on-ramp  | Merging       | 60                 | 22.4                | C              | 58          | 27.7                | C              |
| Rosedale Highway loop on-ramp                                | Merging       | 55                 | 21.1                | C              | 56          | 21.1                | C              |
| Rosedale Highway diagonal on-ramp                            | Merging       | 54                 | 35.3                | E              | 51          | 42.9                | E              |
| California Avenue on-ramp                                    | Merging       | 57                 | 29.5                | D              | 50          | 39.3                | E              |
| SR 58 WB on-ramp   | Merging       | 47                 | 33.7                | D              | 36          | 53.3                | E              |
| Real Road on-ramp  | Merging       | 55                 | 27.6                | C              | 48          | 38.9                | E              |
| Ming Avenue on-ramp  | Merging       | 60                 | 22.6                | C              | 59          | 28.7                | D              |
| White Lane loop on-ramp                                      | Merging       | 61                 | 15.5                | B              | 61          | 20.3                | C              |
| White Lane diagonal on-ramp                                  | Merging       | 61                 | 16.4                | B              | 61          | 21.4                | C              |
| Rosedale Highway off-ramp                                    | Diverging     | 61                 | 23.8                | C              | 59          | 29.8                | D              |
| California Drive off-ramp                                    | Diverging     | 57                 | 36.8                | E              | 56          | 42.5                | E              |
| SR 58 EB/Stockdale Highway off-ramp                          | Diverging     | 58                 | 31.8                | D              | 55          | 39.0                | E              |
| Ming Avenue off-ramp   | Diverging     | 58                 | 30.1                | D              | 55          | 39.5                | E              |
| White Lane off-ramp  | Diverging     | 60                 | 19.2                | B              | 60          | 23.6                | C              |
| Westside Parkway EB  |               |                    |                     |                |             |                     |                |
| West Beltway loop on-ramp                                    | Merging       | — NOT APPLICABLE — |                     |                | 61          | 13.7                | B              |
| West Beltway diagonal on-ramp                                | Merging       | — NOT APPLICABLE — |                     |                | 62          | 18.5                | B              |
| Allen Road on-ramp   | Merging       | 61                 | 14.4                | B              | 55          | 32.0                | D              |
| Calloway Drive loop on-ramp                                  | Merging       | 62                 | 13.5                | B              | 60          | 23.7                | C              |
| Calloway Drive diagonal on-ramp                              | Merging       | 60                 | 18.4                | B              | 56          | 27.8                | C              |
| Mohawk Street on-ramp  | Merging       | 64                 | 11.4                | B              | 63          | 14.3                | B              |
| West Beltway off-ramp  | Diverging     | — NOT APPLICABLE — |                     |                | 47          | 23.9                | C              |
| Allen Road off-ramp  | Diverging     | 65                 | 3.8                 | A              | 62          | 18.2                | B              |
| Calloway Drive off-ramp                                      | Diverging     | 62                 | 15.0                | B              | 60          | 30.7                | D              |
| Coffee Road off-ramp   | Diverging     | 61                 | 23.1                | C              | 60          | 33.9                | D              |
| Coffee Road on-ramp to Mohawk Street/Truxtun Avenue off-ramp | Weaving       | 63                 | 10.2                | B              | 62          | 14.4                | B              |
| Westside Parkway WB  |               |                    |                     |                |             |                     |                |
| Mohawk Street loop on-ramp                                   | Merging       | 62                 | 9.6                 | A              | 62          | 10.9                | B              |
| Mohawk Street diagonal on-ramp                               | Merging       | 62                 | 10.1                | B              | 62          | 13.0                | B              |
| Coffee Road loop on-ramp                                     | Merging       | 62                 | 6.3                 | A              | 62          | 10.7                | B              |
| Coffee Road diagonal on-ramp                                 | Merging       | 63                 | 6.9                 | A              | 62          | 12.4                | B              |
| Calloway Drive on-ramp                                       | Merging       | 63                 | 7.4                 | A              | 62          | 14.4                | B              |
| Allen Road on-ramp   | Merging       | 63                 | 4.5                 | A              | 63          | 10.4                | B              |
| West Beltway loop on-ramp                                    | Merging       | — NOT APPLICABLE — |                     |                | 62          | 9.3                 | A              |
| West Beltway diagonal on-ramp                                | Merging       | — NOT APPLICABLE — |                     |                | 60          | 12.0                | B              |
| Coffee Road off-ramp   | Diverging     | 61                 | 10.2                | B              | 61          | 12.0                | B              |
| Calloway Drive diagonal off-ramp                             | Diverging     | 63                 | 10.2                | B              | 62          | 18.3                | B              |
| Calloway Drive loop off-ramp                                 | Diverging     | 62                 | 8.7                 | A              | 61          | 16.0                | B              |
| Allen Road off-ramp  | Diverging     | 62                 | 6.6                 | A              | 61          | 16.0                | B              |
| West Beltway off-ramp  | Diverging     | — NOT APPLICABLE — |                     |                | 62          | 10.0                | A              |
| State Route 58 EB  |               |                    |                     |                |             |                     |                |
| SR 99 NB and SB on-ramp                                      | Merging       | 57                 | 23.2                | C              | 57          | 25.3                | C              |
| Chester Avenue on-ramp                                       | Merging       | 59                 | 25.8                | C              | 57          | 29.4                | D              |
| Union Avenue loop on-ramp                                    | Merging       | 62                 | 19.2                | B              | 61          | 22.3                | C              |
| Union Avenue diagonal on-ramp                                | Merging       | 62                 | 22.0                | C              | 61          | 25.4                | C              |
| Cottonwood Road on-ramp                                      | Merging       | 62                 | 19.4                | B              | 61          | 22.9                | C              |
| H Street off-ramp  | Diverging     | 60                 | 23.4                | C              | 59          | 25.4                | C              |
| Union Avenue off-ramp  | Diverging     | 61                 | 25.1                | C              | 60          | 28.1                | D              |
| Cottonwood Road off-ramp                                     | Diverging     | 62                 | 22.0                | C              | 61          | 25.3                | C              |
| State Route 58 WB  |               |                    |                     |                |             |                     |                |
| Cottonwood Road on-ramp                                      | Merging       | 63                 | 18.6                | B              | 61          | 27.0                | C              |
| Brundage Lane on-ramp  | Merging       | 62                 | 18.0                | B              | 61          | 23.0                | C              |
| Union Avenue on-ramp   | Merging       | 61                 | 21.7                | C              | 59          | 27.6                | C              |
| H Street on-ramp   | Merging       | 60                 | 23.0                | C              | 54          | 32.0                | D              |
| Cottonwood Road off-ramp                                     | Diverging     | 64                 | 17.9                | B              | 63          | 25.0                | C              |
| Brundage Lane off-ramp                                       | Diverging     | 62                 | 20.1                | C              | 60          | 29.1                | D              |
| Chester Avenue off-ramp                                      | Diverging     | 61                 | 21.8                | C              | 60          | 27.2                | C              |
| SR 99 NB off-ramp  | Diverging     | 60                 | 23.3                | C              | 56          | 31.5                | D              |
| SR 99 SB off-ramp  | Diverging     | 59                 | 12.3                | B              | 57          | 14.7                | B              |

Note: Merge/diverge calculations are based on 1,500 feet from on-/off-ramp. These calculations also include two right-most lanes within 1,500 feet.

Table 4-11. PM Peak Hour Measures of Effectiveness for the No-Build Alternative—Merging/Diverging Conditions

| LOCATION  | ANALYSIS<br>TYPE | YEAR 2018          |                        |                   | YEAR 2038      |                        |                   |
|---|------------------|--------------------|------------------------|-------------------|----------------|------------------------|-------------------|
|   |                  | SPEED<br>(mph)     | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) |
| State Route 99 NB   |                  |                    |                        |                   |                |                        |                   |
| White Lane loop on-ramp   | Merging          | 53                 | 28.4                   | D                 | 38             | 41.3                   | E                 |
| White Lane diagonal on-ramp                                       | Merging          | 56                 | 31.8                   | D                 | 34             | 52.0                   | E                 |
| Ming Avenue on to SR 58/Wible Road off                            | Merging          | 32                 | 53.7                   | E                 | 24             | 61.7                   | F                 |
| Wible Road on-ramp  | Merging          | 60                 | 22.9                   | C                 | 60             | 18.5                   | B                 |
| SR 58 WB on-ramp  | Merging          | 54                 | 33.4                   | D                 | 51             | 34.1                   | D                 |
| California Avenue loop on-ramp                                    | Merging          | 57                 | 33.1                   | D                 | 59             | 31.3                   | D                 |
| California Avenue diagonal on-ramp                                | Merging          | 56                 | 32.7                   | D                 | 56             | 33.0                   | D                 |
| Buck Owens Boulevard/Sillect Avenue on-ramp                       | Merging          | 60                 | 22.1                   | C                 | 60             | 23.7                   | C                 |
| White Lane off-ramp   | Diverging        | 63                 | 19.8                   | B                 | 53             | 34.2                   | D                 |
| Ming Avenue off-ramp  | Diverging        | 60                 | 29.5                   | D                 | 15             | 81.5                   | F                 |
| Ming Avenue on to SR 58/Wible Road off                            | Diverging        | 32                 | 53.7                   | E                 | 24             | 61.7                   | F                 |
| California Avenue off-ramp  | Diverging        | 59                 | 35.6                   | E                 | 59             | 34.9                   | D                 |
| Rosedale Highway off-ramp   | Diverging        | 57                 | 26.6                   | C                 | 56             | 27.7                   | C                 |
| Buck Owens Boulevard/Sillect Avenue off-ramp                      | Diverging        | 61                 | 21.1                   | C                 | 61             | 21.3                   | C                 |
| Airport Drive off-ramp  | Diverging        | 57                 | 28.1                   | D                 | 56             | 29.6                   | D                 |
| State Route 99 SB   |                  |                    |                        |                   |                |                        |                   |
| Airport Drive on-ramp   | Merging          | 59                 | 28.3                   | D                 | 35             | 51.1                   | E                 |
| Rosedale Highway loop on-ramp                                     | Merging          | 41                 | 37.2                   | E                 | 39             | 38.2                   | E                 |
| Rosedale Highway diagonal on-ramp                                 | Merging          | 49                 | 46.9                   | E                 | 45             | 51.6                   | E                 |
| California Avenue on-ramp   | Merging          | 39                 | 54.3                   | E                 | 35             | 62.1                   | F                 |
| SR 58 WB on-ramp  | Merging          | 33                 | 59.7                   | F                 | 17             | 107.5                  | F                 |
| Real Road on-ramp   | Merging          | 43                 | 42.9                   | E                 | 33             | 59.2                   | F                 |
| Ming Avenue on-ramp   | Merging          | 59                 | 26.4                   | C                 | 59             | 29.3                   | D                 |
| White Lane loop on-ramp   | Merging          | 60                 | 19.5                   | B                 | 60             | 25.1                   | C                 |
| White Lane diagonal on-ramp                                       | Merging          | 61                 | 21.5                   | C                 | 60             | 28.0                   | C                 |
| Rosedale Highway off-ramp   | Diverging        | 60                 | 29.3                   | D                 | 34             | 53.7                   | E                 |
| California Drive off-ramp   | Diverging        | 55                 | 44.7                   | E                 | 49             | 51.9                   | E                 |
| SR 58 EB/Stockdale Highway off-ramp                               | Diverging        | 50                 | 46.2                   | E                 | 48             | 47.4                   | E                 |
| Ming Avenue off-ramp  | Diverging        | 52                 | 41.2                   | E                 | 38             | 57.6                   | F                 |
| White Lane off-ramp   | Diverging        | 58                 | 25.0                   | C                 | 58             | 28.0                   | D                 |
| Westside Parkway EB   |                  |                    |                        |                   |                |                        |                   |
| West Beltway loop on-ramp   | Merging          | — NOT APPLICABLE — |                        |                   | 61             | 10.8                   | B                 |
| West Beltway diagonal on-ramp                                     | Merging          | — NOT APPLICABLE — |                        |                   | 63             | 12.2                   | B                 |
| Allen Road on-ramp  | Merging          | 61                 | 12.2                   | B                 | 59             | 23.9                   | C                 |
| Calloway Drive loop on-ramp                                       | Merging          | 62                 | 11.1                   | B                 | 61             | 17.9                   | B                 |
| Calloway Drive diagonal on-ramp                                   | Merging          | 61                 | 14.6                   | B                 | 60             | 20.1                   | C                 |
| Mohawk Street on-ramp   | Merging          | 64                 | 9.4                    | A                 | 64             | 10.9                   | B                 |
| West Beltway off-ramp   | Diverging        | — NOT APPLICABLE — |                        |                   | 44             | 24.2                   | C                 |
| Allen Road off-ramp   | Diverging        | 64                 | 3.9                    | A                 | 63             | 12.5                   | B                 |
| Calloway Drive off-ramp   | Diverging        | 63                 | 12.5                   | B                 | 61             | 24.1                   | C                 |
| Coffee Road off-ramp  | Diverging        | 61                 | 18.5                   | B                 | 60             | 26.4                   | C                 |
| Coffee Road loop on-ramp to Mohawk Street/Truxtun Avenue off-ramp | Weaving          | 62                 | 10.6                   | B                 | 62             | 11.6                   | B                 |
| Westside Parkway WB   |                  |                    |                        |                   |                |                        |                   |
| Mohawk Street loop on-ramp  | Merging          | 62                 | 13.6                   | B                 | 62             | 16.5                   | B                 |
| Mohawk Street diagonal on-ramp                                    | Merging          | 61                 | 15.2                   | B                 | 61             | 18.6                   | B                 |
| Coffee Road loop on-ramp  | Merging          | 62                 | 10.4                   | B                 | 61             | 18.5                   | B                 |
| Coffee Road diagonal on-ramp                                      | Merging          | 63                 | 12.4                   | B                 | 60             | 21.6                   | C                 |
| Calloway Drive on-ramp  | Merging          | 62                 | 13.1                   | B                 | 60             | 27.4                   | C                 |
| Allen Road on-ramp  | Merging          | 63                 | 5.6                    | A                 | 62             | 17.1                   | B                 |
| West Beltway loop on-ramp   | Merging          | — NOT APPLICABLE — |                        |                   | 61             | 15.0                   | B                 |
| West Beltway diagonal on-ramp                                     | Merging          | — NOT APPLICABLE — |                        |                   | 58             | 18.8                   | B                 |
| Coffee Road off-ramp  | Diverging        | 61                 | 12.9                   | B                 | 61             | 14.2                   | B                 |
| Calloway Drive diagonal off-ramp                                  | Diverging        | 60                 | 21.0                   | C                 | 59             | 33.1                   | D                 |
| Calloway Drive loop off-ramp                                      | Diverging        | 60                 | 17.0                   | B                 | 61             | 27.8                   | C                 |
| Allen Road off-ramp   | Diverging        | 61                 | 12.0                   | B                 | 60             | 31.4                   | D                 |
| West Beltway off-ramp   | Diverging        | — NOT APPLICABLE — |                        |                   | 61             | 17.1                   | B                 |
| State Route 58 EB   |                  |                    |                        |                   |                |                        |                   |
| SR 99 NB and SB on-ramp   | Merging          | 57                 | 23.3                   | C                 | 57             | 24.4                   | C                 |
| Chester Avenue on-ramp  | Merging          | 59                 | 26.6                   | C                 | 58             | 29.5                   | D                 |
| Union Avenue loop on-ramp   | Merging          | 61                 | 22.6                   | C                 | 59             | 27.7                   | C                 |
| Union Avenue diagonal on-ramp                                     | Merging          | 61                 | 25.6                   | C                 | 59             | 33.1                   | D                 |
| Cottonwood Road on-ramp   | Merging          | 61                 | 23.5                   | C                 | 59             | 30.3                   | D                 |
| H Street off-ramp   | Diverging        | 60                 | 23.7                   | C                 | 60             | 25.1                   | C                 |
| Union Avenue off-ramp   | Diverging        | 61                 | 25.9                   | C                 | 60             | 28.3                   | D                 |
| Cottonwood Road off-ramp  | Diverging        | 61                 | 25.4                   | C                 | 60             | 31.9                   | D                 |
| State Route 58 WB   |                  |                    |                        |                   |                |                        |                   |
| Cottonwood Road on-ramp   | Merging          | 62                 | 19.5                   | B                 | 61             | 22.9                   | C                 |
| Brundage Lane on-ramp   | Merging          | 62                 | 19.6                   | B                 | 61             | 22.8                   | C                 |
| Union Avenue on-ramp  | Merging          | 60                 | 24.3                   | C                 | 59             | 28.5                   | D                 |
| H Street on-ramp  | Merging          | 59                 | 26.0                   | C                 | 35             | 45.9                   | E                 |
| Cottonwood Road off-ramp  | Diverging        | 64                 | 17.0                   | B                 | 63             | 20.4                   | C                 |
| Brundage Lane off-ramp  | Diverging        | 62                 | 20.9                   | C                 | 61             | 24.3                   | C                 |
| Chester Avenue off-ramp   | Diverging        | 61                 | 24.1                   | C                 | 60             | 28.0                   | C                 |
| SR 99 NB off-ramp   | Diverging        | 60                 | 26.2                   | C                 | 35             | 46.3                   | E                 |
| SR 99 SB off-ramp   | Diverging        | 58                 | 14                     | B                 | 19             | 46                     | E                 |

Note: Merge/diverge calculations are based on 1,500 feet from on-/off-ramp. These calculations also include two right-most mainline lanes within 1,500 feet.

Table 4-12. AM Peak Hour Measures of Effectiveness for the No-Build Alternative—On-Ramp and Off-Ramp Performance

| FREEWAY RAMPS                       | YEAR 2018           |                            |                                       |             | YEAR 2038           |                            |                                       |             |
|-------------------------------------|---------------------|----------------------------|---------------------------------------|-------------|---------------------|----------------------------|---------------------------------------|-------------|
|                                     | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) |
| State Route 99 NB Off-ramps         |                     |                            |                                       |             |                     |                            |                                       |             |
| White Lane                          | 680                 | 680                        | 100%                                  | 62          | 1,065               | 935                        | 88%                                   | 15          |
| Ming Avenue                         | 515                 | 460                        | 89%                                   | 54          | 790                 | 622                        | 79%                                   | 30          |
| SR 58 EB/Wible Road                 | 2,105               | 2,105                      | 100%                                  | 46          | 2,825               | 2,206                      | 78%                                   | 45          |
| California Avenue                   | 1,145               | 1,025                      | 90%                                   | 52          | 1,180               | 974                        | 83%                                   | 52          |
| Rosedale Highway                    | 2,150               | 1,946                      | 91%                                   | 53          | 2,440               | 1,999                      | 82%                                   | 53          |
| Buck Owens Boulevard/Sillect Avenue | 825                 | 747                        | 91%                                   | 53          | 825                 | 682                        | 83%                                   | 53          |
| Airport Drive                       | 1,535               | 1,417                      | 92%                                   | 52          | 1,750               | 1,287                      | 74%                                   | 52          |
| State Route 99 NB On-ramps          |                     |                            |                                       |             |                     |                            |                                       |             |
| White Lane loop                     | 1,590               | 1,086                      | 68%                                   | 44          | 1,605               | 520                        | 32%                                   | 15          |
| White Lane diagonal                 | 690                 | 658                        | 95%                                   | 52          | 695                 | 493                        | 71%                                   | 11          |
| Ming Avenue                         | 1,320               | 1,320                      | 100%                                  | 47          | 1,585               | 1,585                      | 100%                                  | 43          |
| Wible Road                          | 590                 | 551                        | 93%                                   | 50          | 640                 | 544                        | 85%                                   | 50          |
| SR 58 WB                            | 1,285               | 1,227                      | 95%                                   | 45          | 1,785               | 1,775                      | 99%                                   | 37          |
| California Avenue loop              | 535                 | 514                        | 96%                                   | 44          | 565                 | 460                        | 81%                                   | 44          |
| California Avenue diagonal          | 235                 | 118                        | 50%                                   | 51          | 240                 | 147                        | 61%                                   | 50          |
| Buck Owens Boulevard/Sillect Avenue | 385                 | 371                        | 96%                                   | 33          | 600                 | 547                        | 91%                                   | 33          |
| State Route 99 SB Off-ramps         |                     |                            |                                       |             |                     |                            |                                       |             |
| Rosedale Highway                    | 660                 | 660                        | 100%                                  | 53          | 1,075               | 1,066                      | 99%                                   | 52          |
| California Avenue                   | 1,105               | 1,105                      | 100%                                  | 52          | 1,200               | 1,200                      | 100%                                  | 52          |
| SR 58 EB/Stockdale Highway          | 1,645               | 1,642                      | 100%                                  | 52          | 1,890               | 1,795                      | 95%                                   | 52          |
| Ming Avenue                         | 1,000               | 1,000                      | 100%                                  | 53          | 1,230               | 1,230                      | 100%                                  | 52          |
| White Lane                          | 1,365               | 1,357                      | 99%                                   | 54          | 1,495               | 1,436                      | 96%                                   | 53          |
| State Route 99 SB On-ramps          |                     |                            |                                       |             |                     |                            |                                       |             |
| Airport Drive                       | 1,265               | 1,265                      | 100%                                  | 47          | 1,425               | 1,425                      | 100%                                  | 46          |
| Rosedale Highway loop               | 900                 | 900                        | 100%                                  | 38          | 1,150               | 805                        | 70%                                   | 41          |
| Rosedale Highway diagonal           | 1,180               | 1,174                      | 99%                                   | 36          | 1,690               | 1,690                      | 100%                                  | 30          |
| California Avenue                   | 425                 | 401                        | 94%                                   | 51          | 720                 | 720                        | 100%                                  | 50          |
| SR 58 WB                            | 1,285               | 1,215                      | 95%                                   | 51          | 1,550               | 1,550                      | 100%                                  | 48          |
| Real Road                           | 390                 | 342                        | 88%                                   | 51          | 510                 | 505                        | 99%                                   | 51          |
| Ming Avenue                         | 495                 | 490                        | 99%                                   | 52          | 690                 | 690                        | 100%                                  | 51          |
| White Lane loop                     | 180                 | 178                        | 99%                                   | 52          | 210                 | 170                        | 81%                                   | 52          |
| White Lane diagonal                 | 350                 | 162                        | 46%                                   | 53          | 460                 | 370                        | 80%                                   | 53          |
| Westside Parkway EB Off-ramps       |                     |                            |                                       |             |                     |                            |                                       |             |
| West Beltway                        | — NOT APPLICABLE —  |                            |                                       |             | 800                 | 800                        | 100%                                  | 50          |
| Allen Road                          | 65                  | 61                         | 94%                                   | 56          | 195                 | 187                        | 96%                                   | 53          |
| Calloway Drive                      | 505                 | 472                        | 93%                                   | 54          | 1,108               | 1,087                      | 98%                                   | 53          |
| Coffee Road loop                    | 1,225               | 1,225                      | 100%                                  | 51          | 2,185               | 2,107                      | 96%                                   | 51          |
| Mohawk Street                       | 1,080               | 1,080                      | 100%                                  | 54          | 1,900               | 1,900                      | 100%                                  | 53          |
| Westside Parkway EB On-ramps        |                     |                            |                                       |             |                     |                            |                                       |             |
| West Beltway loop                   | — NOT APPLICABLE —  |                            |                                       |             | 1,185               | 1,177                      | 99%                                   | 48          |
| West Beltway diagonal               | — NOT APPLICABLE —  |                            |                                       |             | 550                 | 525                        | 95%                                   | 53          |
| Allen Road                          | 1,425               | 1,394                      | 98%                                   | 45          | 1,810               | 1,810                      | 100%                                  | 44          |
| Calloway Drive loop                 | 465                 | 421                        | 91%                                   | 47          | 484                 | 479                        | 99%                                   | 47          |
| Calloway Drive diagonal             | 1,055               | 1,055                      | 100%                                  | 51          | 914                 | 914                        | 100%                                  | 51          |
| Coffee Road loop                    | 315                 | 287                        | 91%                                   | 49          | 385                 | 385                        | 100%                                  | 48          |
| Coffee Road diagonal                | 355                 | 328                        | 92%                                   | 54          | 550                 | 527                        | 96%                                   | 54          |
| Mohawk Street                       | —                   | —                          | —                                     | —           | —                   | —                          | —                                     | —           |
| Westside Parkway WB Off-ramps       |                     |                            |                                       |             |                     |                            |                                       |             |
| Coffee Road                         | 1,125               | 1,125                      | 100%                                  | 54          | 1,185               | 1,185                      | 100%                                  | 54          |
| Calloway Drive diagonal             | 195                 | 195                        | 100%                                  | 54          | 312                 | 294                        | 94%                                   | 54          |
| Calloway Drive loop                 | 430                 | 385                        | 90%                                   | 54          | 580                 | 551                        | 95%                                   | 54          |
| Allen Road                          | 750                 | 698                        | 93%                                   | 54          | 850                 | 806                        | 95%                                   | 52          |
| West Beltway                        | — NOT APPLICABLE —  |                            |                                       |             | 1,060               | 1,030                      | 97%                                   | 54          |
| Westside Parkway WB On-ramps        |                     |                            |                                       |             |                     |                            |                                       |             |
| Mohawk Street loop                  | 680                 | 671                        | 99%                                   | 47          | 835                 | 835                        | 100%                                  | 47          |
| Mohawk Street diagonal              | 720                 | 661                        | 92%                                   | 51          | 1,005               | 1,005                      | 100%                                  | 51          |
| Coffee Road loop                    | 185                 | 175                        | 95%                                   | 51          | 555                 | 487                        | 88%                                   | 50          |
| Coffee Road diagonal                | 230                 | 228                        | 99%                                   | 54          | 645                 | 601                        | 93%                                   | 54          |
| Calloway Drive                      | 240                 | 240                        | 100%                                  | 53          | 465                 | 454                        | 98%                                   | 53          |
| Allen Road                          | 100                 | 100                        | 100%                                  | 50          | 225                 | 225                        | 100%                                  | 50          |
| West Beltway loop                   | — NOT APPLICABLE —  |                            |                                       |             | 395                 | 369                        | 93%                                   | 49          |
| West Beltway diagonal               | — NOT APPLICABLE —  |                            |                                       |             | 290                 | 286                        | 99%                                   | 54          |
| State Route 58 EB Off-ramps         |                     |                            |                                       |             |                     |                            |                                       |             |
| H Street                            | 485                 | 465                        | 96%                                   | 54          | 545                 | 485                        | 89%                                   | 52          |
| Union Avenue                        | 855                 | 833                        | 97%                                   | 53          | 915                 | 800                        | 87%                                   | 53          |
| Cottonwood Road                     | 460                 | 445                        | 97%                                   | 53          | 550                 | 504                        | 92%                                   | 54          |
| State Route 58 EB On-ramps          |                     |                            |                                       |             |                     |                            |                                       |             |
| SR 99 NB and SR 99 SB               | 2,765               | 2,731                      | 99%                                   | 52          | 3,505               | 2,967                      | 85%                                   | 52          |
| Chester Avenue                      | 555                 | 510                        | 92%                                   | 51          | 595                 | 595                        | 100%                                  | 51          |
| Union Avenue loop                   | 245                 | 237                        | 97%                                   | 53          | 300                 | 278                        | 93%                                   | 53          |
| Union Avenue diagonal               | 230                 | 230                        | 100%                                  | 53          | 275                 | 264                        | 96%                                   | 53          |
| Cottonwood Road                     | 230                 | 230                        | 100%                                  | 52          | 305                 | 305                        | 100%                                  | 52          |
| State Route 58 WB Off-ramps         |                     |                            |                                       |             |                     |                            |                                       |             |
| Cottonwood Road                     | 245                 | 245                        | 100%                                  | 54          | 255                 | 234                        | 92%                                   | 55          |
| Brundage Lane                       | 530                 | 517                        | 98%                                   | 54          | 880                 | 880                        | 100%                                  | 50          |
| Chester Avenue                      | 605                 | 585                        | 97%                                   | 53          | 735                 | 735                        | 100%                                  | 53          |
| SR 99 NB                            | 1,285               | 1,231                      | 96%                                   | 53          | 1,785               | 1,785                      | 100%                                  | 52          |
| SR 99 SB                            | 1,285               | 1,213                      | 94%                                   | 42          | 1,550               | 1,550                      | 100%                                  | 41          |
| State Route 58 WB On-ramps          |                     |                            |                                       |             |                     |                            |                                       |             |
| Cottonwood Road                     | 230                 | 217                        | 94%                                   | 51          | 240                 | 240                        | 100%                                  | 50          |
| Brundage Lane                       | 215                 | 215                        | 100%                                  | 49          | 220                 | 204                        | 93%                                   | 49          |
| Union Avenue                        | 345                 | 327                        | 95%                                   | 51          | 400                 | 391                        | 98%                                   | 51          |
| H Street                            | 490                 | 421                        | 86%                                   | 51          | 405                 | 405                        | 100%                                  | 50          |

Table 4-13. PM Peak Hour Measures of Effectiveness for the No-Build Alternative—On-Ramp and Off-Ramp Performance

|                                     | YEAR 2018                 |                                  |   |                | YEAR 2038                 |                                  |   |                |
|-------------------------------------|---------------------------|----------------------------------|---|----------------|---------------------------|----------------------------------|---|----------------|
|                                     | DEMAND<br>VOLUME<br>(vph) | CORSIM<br>SERVED<br>VOLUME (vph) | PERCENTAGE<br>SERVED IN CORSIM<br>MODEL (%) | SPEED<br>(mph) | DEMAND<br>VOLUME<br>(vph) | CORSIM<br>SERVED<br>VOLUME (vph) | PERCENTAGE<br>SERVED IN CORSIM<br>MODEL (%) | SPEED<br>(mph) |
| FREEWAY RAMPS                       |                           |                                  |   |                |                           |                                  |   |                |
| State Route 99 NB Off-ramps         |                           |                                  |   |                |                           |                                  |   |                |
| White Lane                          | 685                       | 685                              | 100%  | 61             | 1,095                     | 1,095                            | 100%  | 33             |
| Ming Avenue                         | 625                       | 574                              | 92%   | 54             | 820                       | 702                              | 86%   | 32             |
| SR 58 EB/Wible Road                 | 1,905                     | 1,898                            | 100%  | 47             | 2,500                     | 2,220                            | 89%   | 46             |
| California Avenue                   | 770                       | 770                              | 100%  | 53             | 880                       | 784                              | 89%   | 52             |
| Rosedale Highway                    | 1,850                     | 1,850                            | 100%  | 53             | 2,090                     | 1,978                            | 95%   | 53             |
| Buck Owens Boulevard/Sillect Avenue | 400                       | 400                              | 100%  | 52             | 550                       | 453                              | 82%   | 53             |
| Airport Drive                       | 1,345                     | 1,329                            | 99%   | 52             | 1,415                     | 1,224                            | 87%   | 52             |
| State Route 99 NB On-ramps          |                           |                                  |   |                |                           |                                  |   |                |
| White Lane loop                     | 1,455                     | 1,435                            | 99%   | 42             | 1,645                     | 1,214                            | 74%   | 40             |
| White Lane diagonal                 | 555                       | 555                              | 100%  | 53             | 610                       | 603                              | 99%   | 45             |
| Ming Avenue                         | 1,245                     | 1,245                            | 100%  | 48             | 1,495                     | 1,495                            | 100%  | 44             |
| Wible Road                          | 610                       | 582                              | 95%   | 51             | 610                       | 518                              | 85%   | 51             |
| SR 58 WB                            | 1,430                     | 1,375                            | 96%   | 43             | 1,715                     | 1,666                            | 97%   | 35             |
| California Avenue loop              | 690                       | 674                              | 98%   | 44             | 740                       | 527                              | 71%   | 45             |
| California Avenue diagonal          | 320                       | 253                              | 79%   | 51             | 330                       | 232                              | 70%   | 51             |
| Buck Owens Boulevard/Sillect Avenue | 620                       | 600                              | 97%   | 33             | 750                       | 696                              | 93%   | 31             |
| State Route 99 SB Off-ramps         |                           |                                  |   |                |                           |                                  |   |                |
| Rosedale Highway                    | 675                       | 675                              | 100%  | 53             | 1,095                     | 1,003                            | 92%   | 15             |
| California Avenue                   | 1,085                     | 1,085                            | 100%  | 52             | 1,190                     | 1,168                            | 98%   | 50             |
| SR 58 EB/Stockdale Highway          | 1,975                     | 1,975                            | 100%  | 51             | 2,095                     | 1,982                            | 95%   | 51             |
| Ming Avenue                         | 1,625                     | 1,604                            | 99%   | 50             | 1,745                     | 1,669                            | 96%   | 17             |
| White Lane                          | 2,030                     | 2,012                            | 99%   | 54             | 2,030                     | 1,925                            | 95%   | 45             |
| State Route 99 SB On-ramps          |                           |                                  |   |                |                           |                                  |   |                |
| Airport Drive                       | 1,755                     | 1,755                            | 100%  | 45             | 2,115                     | 2,012                            | 95%   | 30             |
| Rosedale Highway loop               | 1,305                     | 1,305                            | 100%  | 34             | 1,380                     | 1,380                            | 100%  | 33             |
| Rosedale Highway diagonal           | 1,335                     | 1,335                            | 100%  | 34             | 1,625                     | 1,343                            | 83%   | 34             |
| California Avenue                   | 925                       | 860                              | 93%   | 50             | 1,050                     | 962                              | 92%   | 49             |
| SR 58 WB                            | 1,430                     | 1,410                            | 99%   | 47             | 1,755                     | 1,631                            | 93%   | 13             |
| Real Road                           | 470                       | 426                              | 91%   | 51             | 655                       | 532                              | 81%   | 50             |
| Ming Avenue                         | 645                       | 645                              | 100%  | 51             | 835                       | 835                              | 100%  | 51             |
| White Lane loop                     | 495                       | 488                              | 99%   | 51             | 575                       | 540                              | 94%   | 51             |
| White Lane diagonal                 | 450                       | 274                              | 61%   | 53             | 675                       | 573                              | 85%   | 52             |
| Westside Parkway EB Off-ramps       |                           |                                  |   |                |                           |                                  |   |                |
| West Beltway                        | — NOT APPLICABLE —        |                                  |   |                | 955                       | 936                              | 98%   | 49             |
| Allen Road                          | 85                        | 82                               | 96%   | 53             | 180                       | 164                              | 91%   | 54             |
| Calloway Drive                      | 435                       | 402                              | 92%   | 54             | 929                       | 916                              | 99%   | 53             |
| Coffee Road loop                    | 880                       | 842                              | 96%   | 52             | 1,705                     | 1,638                            | 96%   | 51             |
| Mohawk Street                       | 1,335                     | 1,332                            | 100%  | 53             | 1,545                     | 1,504                            | 97%   | 54             |
| Westside Parkway EB On-ramps        |                           |                                  |   |                |                           |                                  |   |                |
| West Beltway loop                   | — NOT APPLICABLE —        |                                  |   |                | 875                       | 860                              | 98%   | 48             |
| West Beltway diagonal               | — NOT APPLICABLE —        |                                  |   |                | 145                       | 145                              | 100%  | 54             |
| Allen Road                          | 1,095                     | 1,095                            | 100%  | 48             | 1,610                     | 1,581                            | 98%   | 48             |
| Calloway Drive loop                 | 340                       | 317                              | 93%   | 47             | 381                       | 362                              | 95%   | 47             |
| Calloway Drive diagonal             | 860                       | 838                              | 97%   | 52             | 762                       | 719                              | 94%   | 53             |
| Coffee Road loop                    | 415                       | 400                              | 96%   | 48             | 430                       | 410                              | 95%   | 48             |
| Coffee Road diagonal                | 460                       | 439                              | 95%   | 54             | 475                       | 456                              | 96%   | 54             |
| Mohawk Street                       | —                         | —                                | —   | —              | —                         | —                                | —   | —              |
| Westside Parkway WB Off-ramps       |                           |                                  |   |                |                           |                                  |   |                |
| Coffee Road                         | 1,285                     | 1,206                            | 94%   | 54             | 1,215                     | 1,122                            | 92%   | 54             |
| Calloway Drive diagonal             | 505                       | 463                              | 92%   | 54             | 510                       | 510                              | 100%  | 54             |
| Calloway Drive loop                 | 1,105                     | 941                              | 85%   | 53             | 1,015                     | 935                              | 92%   | 54             |
| Allen Road                          | 1,565                     | 1,435                            | 92%   | 54             | 1,880                     | 1,796                            | 96%   | 51             |
| West Beltway                        | — NOT APPLICABLE —        |                                  |   |                | 1,875                     | 1,772                            | 95%   | 53             |
| Westside Parkway WB On-ramps        |                           |                                  |   |                |                           |                                  |   |                |
| Mohawk Street loop                  | 1,080                     | 1,047                            | 97%   | 47             | 1,250                     | 1,250                            | 100%  | 47             |
| Mohawk Street diagonal              | 1,245                     | 1,076                            | 86%   | 50             | 1,415                     | 1,366                            | 97%   | 50             |
| Coffee Road loop                    | 290                       | 278                              | 96%   | 51             | 980                       | 952                              | 97%   | 50             |
| Coffee Road diagonal                | 565                       | 512                              | 91%   | 53             | 1,025                     | 1,001                            | 98%   | 53             |
| Calloway Drive                      | 550                       | 550                              | 100%  | 53             | 985                       | 983                              | 100%  | 52             |
| Allen Road                          | 70                        | 70                               | 100%  | 51             | 330                       | 322                              | 98%   | 50             |
| West Beltway loop                   | — NOT APPLICABLE —        |                                  |   |                | 545                       | 531                              | 97%   | 48             |
| West Beltway diagonal               | — NOT APPLICABLE —        |                                  |   |                | 350                       | 334                              | 95%   | 53             |
| State Route 58 EB Off-ramps         |                           |                                  |   |                |                           |                                  |   |                |
| H Street                            | 440                       | 423                              | 96%   | 53             | 475                       | 435                              | 92%   | 53             |
| Union Avenue                        | 595                       | 595                              | 100%  | 53             | 645                       | 604                              | 94%   | 54             |
| Cottonwood Road                     | 410                       | 410                              | 100%  | 54             | 600                       | 522                              | 87%   | 54             |
| State Route 58 EB On-ramps          |                           |                                  |   |                |                           |                                  |   |                |
| SR 99 NB and SR 99 SB               | 2,835                     | 2,835                            | 100%  | 52             | 3,390                     | 3,114                            | 92%   | 52             |
| Chester Avenue                      | 685                       | 651                              | 95%   | 51             | 840                       | 840                              | 100%  | 50             |
| Union Avenue loop                   | 415                       | 335                              | 81%   | 53             | 770                       | 656                              | 85%   | 53             |
| Union Avenue diagonal               | 315                       | 315                              | 100%  | 52             | 635                       | 628                              | 99%   | 52             |
| Cottonwood Road                     | 340                       | 340                              | 100%  | 52             | 485                       | 484                              | 100%  | 51             |
| State Route 58 WB Off-ramps         |                           |                                  |   |                |                           |                                  |   |                |
| Cottonwood Road                     | 205                       | 205                              | 100%  | 54             | 240                       | 240                              | 100%  | 54             |
| Brundage Lane                       | 495                       | 495                              | 100%  | 53             | 595                       | 565                              | 95%   | 52             |
| Chester Avenue                      | 615                       | 576                              | 94%   | 53             | 645                       | 620                              | 96%   | 53             |
| SR 99 NB                            | 1,430                     | 1,375                            | 96%   | 53             | 1,715                     | 1,672                            | 97%   | 49             |
| SR 99 SB                            | 1,430                     | 1,407                            | 98%   | 41             | 1,755                     | 1,652                            | 94%   | 13             |
| State Route 58 WB On-ramps          |                           |                                  |   |                |                           |                                  |   |                |
| Cottonwood Road                     | 380                       | 380                              | 100%  | 50             | 400                       | 394                              | 99%   | 50             |
| Brundage Lane                       | 355                       | 325                              | 92%   | 49             | 395                       | 368                              | 93%   | 49             |
| Union Avenue                        | 530                       | 470                              | 89%   | 51             | 555                       | 522                              | 94%   | 51             |
| H Street                            | 505                       | 443                              | 88%   | 51             | 595                       | 595                              | 100%  | 22             |

Table 4-14. Ramp Termini and Intersection Level of Service for the No-build Alternative (1 of 3)

| INTERSECTION                                 | SIGNAL CONTROL                     | YEAR 2018              |                     |         |                     | YEAR 2038 |                     |         |                     |
|--|------------------------------------|------------------------|---------------------|---------|---------------------|-----------|---------------------|---------|---------------------|
|  |                                    | AM PEAK                |                     | PM PEAK |                     | AM PEAK   |                     | PM PEAK |                     |
|  |                                    | LOS                    | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) |
| 1. I-5 SB ramps/Stockdale Highway            | NB/SB two-way stop                 | A                      | 4.1                 | A       | 7.3                 | A         | 6.4                 | F       | 92.0                |
|  | Imp-Signal*                        | N/A                    |                     |         |                     | B         | 12.2                | B       | 11.6                |
| 2. I-5 NB ramps/Stockdale Highway            | NB/SB two-way stop                 | A                      | 4.6                 | A       | 8.4                 | A         | 4.0                 | B       | 14.0                |
| 3. SR 43 (Enos Lane)/Rosedale Highway        | 4-way stop                         | B                      | 13.3                | D       | 28.3                | D         | 25.8                | F       | 77.0                |
|  | Imp-Signal                         | N/A                    |                     |         |                     | C         | 24.5                | C       | 31.9                |
| 4. SR 43 (Enos Lane)/Stockdale Highway       | 4-way stop                         | F                      | 45.9                | F       | 66.2                | F         | >150                | F       | >150                |
|  | Imp-Signal                         | D                      | 37.1                | D       | 39.2                | C         | 24.2                | C       | 23.0                |
| 5. SR 43 (Enos Lane)/I-5 NB ramps            | EB/WB two-way stop                 | A                      | 5.4                 | B       | 11.5                | A         | 3.4                 | B       | 10.7                |
| 6. SR 43 (Enos Lane)/I-5 SB ramps            | EB/WB two-way stop                 | A                      | 7.1                 | C       | 16.1                | A         | 5.7                 | C       | 19.8                |
| 7. Stockdale Highway/Nord Road               | Signal                             | D                      | 40.0                | C       | 28.6                | C         | 31.8                | C       | 29.1                |
| 8. Stockdale Highway/Wegis Avenue            | NB/SB two-way stop                 | A                      | 7.1                 | B       | 10.4                | F         | >150                | F       | >150                |
|  | Imp-Signal*                        | N/A                    |                     |         |                     | C         | 21.5                | C       | 23.2                |
| 9. Stockdale Highway/Heath Road              | Stop (existing)<br>Signal (future) | C                      | 21.1                | C       | 20.5                | C         | 29.2                | C       | 27.6                |
| 10. Stockdale Highway/Westside Parkway       | Signal                             | A                      | 5.6                 | A       | 6.4                 | A         | 7.6                 | A       | 9.0                 |
| 11. West Beltway/Westside Parkway WB ramp    | Signal                             | Does not exist in 2018 |                     |         |                     | A         | 6.5                 | B       | 14.7                |
| 12. West Beltway/Westside Parkway EB ramp    | Signal                             | Does not exist in 2018 |                     |         |                     | B         | 11.2                | B       | 18.2                |
| 13. Allen Road/Rosedale Highway              | Signal*                            | C                      | 33.2                | D       | 43.3                | D         | 40.7                | D       | 47.1                |
| 14. Allen Road/Brimhall Road                 | Signal                             | C                      | 25.6                | C       | 30.4                | C         | 25.9                | C       | 33.5                |
| 15. Allen Road/Westside Parkway WB ramps     | Signal                             | B                      | 12.7                | C       | 24.8                | B         | 15.0                | C       | 28.0                |
| 16. Allen Road/Westside Parkway EB ramps     | Signal                             | B                      | 15.7                | A       | 5.1                 | B         | 10.2                | A       | 3.7                 |
| 17. Allen Road/San Juan Avenue               | Signal*                            | C                      | 22.3                | C       | 20.3                | C         | 22.6                | C       | 28.8                |
| 18. Allen Road/Stockdale Highway             | Signal                             | C                      | 26.5                | C       | 28.0                | C         | 29.8                | C       | 32.5                |
| 19. Calloway Drive/Rosedale Highway          | Signal*                            | D                      | 40.3                | D       | 40.6                | D         | 49.4                | D       | 54.8                |
| 20. Calloway Drive/Brimhall Road             | Signal                             | C                      | 25.7                | C       | 29.2                | C         | 29.9                | C       | 28.5                |
| 21. Calloway Drive/Westside Parkway WB ramps | Signal                             | A                      | 7.9                 | A       | 8.6                 | B         | 10.8                | C       | 20.5                |
| 22. Calloway Drive/Westside Parkway EB ramps | Signal                             | B                      | 16.7                | A       | 7.8                 | B         | 18.4                | A       | 8.9                 |
| 23. Calloway Drive/Stockdale Highway         | Signal                             | D                      | 40.8                | C       | 34.1                | D         | 52.3                | D       | 39.7                |
| 24. Coffee Road/Rosedale Highway*            | Signal*                            | E                      | 69.2                | F       | 87.6                | F         | 81.7                | F       | 92.6                |

Table 4-14. Ramp Termini and Intersection Level of Service for the No-build Alternative (2 of 3)

| INTERSECTION                                 | SIGNAL CONTROL                       | YEAR 2018 |                     |         |                     | YEAR 2038 |                     |         |                     |
|--|--------------------------------------|-----------|---------------------|---------|---------------------|-----------|---------------------|---------|---------------------|
|  |                                      | AM PEAK   |                     | PM PEAK |                     | AM PEAK   |                     | PM PEAK |                     |
|  |                                      | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) |
| 25. Coffee Road/Brimhall Road                | Signal                               | C         | 26.9                | C       | 33.9                | C         | 27.3                | D       | 43.2                |
| 26. Coffee Road/Westside Parkway WB ramps    | Unsignalized                         | N/A       |                     |         |                     | N/A       |                     |         |                     |
| 27. Coffee Road/Westside Parkway EB ramps    | Signal                               | C         | 27.3                | B       | 13.4                | C         | 28.7                | B       | 19.0                |
| 28. Coffee Road/Truxtun Avenue               | Signal                               | B         | 18.0                | B       | 18.1                | C         | 20.5                | C       | 24.5                |
| 29. Coffee Road/Stockdale Highway            | Signal*                              | D         | 35.5                | D       | 53.5                | E         | 56.3                | F       | 99.8                |
| 30. Mohawk Street/Rosedale Highway           | Stop (existing)*<br>Signal (future)* | E         | 57.0                | F       | 111.9               | F         | 103.6               | F       | 123.2               |
| 31. Mohawk Street/WSP WB ramps               | Signal                               | N/A       |                     |         |                     | N/A       |                     |         |                     |
| 32. Mohawk Street/WSP EB ramps               | Signal                               | C         | 26.4                | B       | 14.3                | C         | 24.4                | B       | 19.5                |
| 33. Mohawk Street/Truxtun Avenue             | Signal                               | C         | 27.1                | C       | 24.7                | C         | 31.1                | E       | 59.8                |
| 34. Mohawk Street/California Avenue          | Signal*                              | C         | 30.7                | F       | 88.7                | F         | 106.3               | F       | 162.3               |
| 35. Stockdale Highway/California Avenue      | Signal*                              | E         | 64.7                | D       | 49.0                | F         | 92.6                | F       | 99.9                |
| 36. Airport Drive/State Road–SR 204 off-ramp | Signal                               | C         | 20.4                | C       | 22.9                | C         | 20.2                | C       | 21.9                |
| 37. Airport Drive/SR 99 NB ramp              | Signal                               | A         | 7.1                 | B       | 11.3                | A         | 7.1                 | B       | 10.6                |
| 38. Buck Owens Boulevard/Rio Mirada Drive    | Signal                               | C         | 21.1                | C       | 24.3                | C         | 29.1                | C       | 28.6                |
| 39. SR 99 NB ramps/Buck Owens Boulevard      | Signal                               | D         | 41.2                | D       | 43.8                | D         | 37.5                | D       | 46.2                |
| 40. Rosedale Highway/Camino Del Rio Court    | Signal                               | C         | 34.6                | D       | 44.8                | C         | 20.9                | D       | 49.9                |
| 41. Rosedale Highway/SR 99 SB ramps          | Signal                               | B         | 16.1                | C       | 21.4                | C         | 22.7                | D       | 37.6                |
| 42. Rosedale Highway/SR99 NB ramps           | Signal                               | C         | 25.8                | C       | 27.2                | C         | 26.6                | C       | 30.0                |
| 43. 24th Street/Oak Street                   | Signal                               | C         | 26.5                | C       | 30.3                | D         | 37.5                | C       | 29.5                |
| 44. Truxtun Avenue/Empire Drive              | Signal*                              | C         | 32.8                | C       | 33.8                | C         | 21.4                | D       | 47.6                |
| 45. Truxtun Avenue/Oak Street                | Signal                               | D         | 35.5                | D       | 52.7                | E         | 61.9                | E       | 73.9                |
| 46. California Avenue/Chester Lane           | Signal                               | C         | 23.3                | C       | 29.2                | C         | 23.7                | C       | 30.1                |
| 47. California Avenue/SR 99 SB ramps         | Signal                               | D         | 43.6                | E       | 61.0                | D         | 54.6                | E       | 76.1                |
| 48. California Avenue/SR 99 NB ramps         | Signal                               | C         | 26.7                | C       | 28.6                | C         | 28.5                | D       | 51.5                |
| 49. California Avenue/Oak Street             | Signal                               | C         | 25.3                | E       | 56.0                | C         | 28.3                | E       | 61.5                |
| 50. Stockdale Highway/Stine Road             | Signal*                              | D         | 40.0                | E       | 75.8                | F         | 89.2                | F       | >150                |
| 51. Stockdale Highway/Real Road              | Signal                               | E         | 59.1                | E       | 58.2                | D         | 48.3                | F       | 94.0                |
| 52. Stockdale Highway/SR 99 SB ramp          | Signal                               | B         | 14.3                | B       | 10.7                | B         | 16.8                | B       | 18.0                |

**Table 4-14. Ramp Termini and Intersection Level of Service for the No-build Alternative** (3 of 3)

| INTERSECTION                                     | SIGNAL CONTROL | YEAR 2018 |                     |         |                     | YEAR 2038 |                     |         |                     |
|--|----------------|-----------|---------------------|---------|---------------------|-----------|---------------------|---------|---------------------|
|  |                | AM PEAK   |                     | PM PEAK |                     | AM PEAK   |                     | PM PEAK |                     |
|  |                | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) |
| 53. Brundage Lane/Oak Street                     | Signal         | C         | 27.4                | D       | 42.4                | C         | 31.9                | D       | 40.3                |
| 54. Real Road/SR 58                              | Signal         | C         | 23.6                | C       | 23.8                | C         | 21.8                | D       | 39.3                |
| 55. Wible Road/SR 99 NB ramps                    | Signal         | B         | 14.3                | C       | 31.4                | B         | 15.5                | C       | 28.4                |
| 56. Ming Avenue/New Stine Road                   | Signal*        | D         | 47.2                | D       | 47.7                | D         | 46.9                | E       | 70.3                |
| 57. Ming Avenue/Real Road                        | Signal         | C         | 24.7                | C       | 32.2                | C         | 25.3                | E       | 64.5                |
| 58. Ming Avenue/SR 99 SB ramps                   | Signal         | A         | 2.5                 | A       | 2.8                 | A         | 3.2                 | B       | 15.6                |
| 59. Ming Avenue/Wible Road                       | Signal         | C         | 21.6                | C       | 23.4                | C         | 23.2                | C       | 24.5                |
| 60. Ming Avenue/SR 99 NB ramps                   | Signal         | C         | 24.9                | C       | 30.3                | D         | 36.4                | C       | 28.3                |
| 61. Ming Avenue/Castro Lane                      | Signal         | C         | 23.1                | C       | 26.6                | C         | 25.3                | D       | 38.9                |
| 62. White Lane/Wible Road                        | Signal*        | E         | 55.5                | E       | 77.1                | F         | 82.7                | F       | 131.6               |
| 63. White Lane/SR 99 SB ramps                    | Signal*        | C         | 20.2                | F       | 95.5                | C         | 28.7                | F       | 96.8                |
| 64. White Lane/SR 99 NB ramps                    | Signal*        | A         | 9.3                 | A       | 9.8                 | B         | 20.0                | B       | 19.7                |
| 65. White Lane/Hughes Lane                       | Signal*        | D         | 36.3                | D       | 45.2                | D         | 37.3                | C       | 29.5                |
| 66. H Street/Brundage Lane                       | Signal         | C         | 26.1                | D       | 38.7                | C         | 29.2                | E       | 68.0                |
| 67. H Street/SR 58 WB ramp                       | Signal         | B         | 17.6                | E       | 66.2                | C         | 20.6                | E       | 64.3                |
| 68. H Street/SR 58 EB ramp                       | Signal         | D         | 39.7                | C       | 29.7                | D         | 40.0                | C       | 29.0                |
| 69. H Street/Ming Avenue                         | Signal*        | C         | 30.3                | D       | 43.3                | C         | 33.7                | D       | 37.0                |
| 70. Chester Avenue/Brundage Lane                 | Signal         | C         | 22.1                | C       | 26.5                | C         | 23.2                | E       | 68.0                |
| 71. Chester Avenue/SR 58 WB ramp                 | Signal         | C         | 23.4                | C       | 24.6                | C         | 26.0                | C       | 28.5                |
| 72. Chester Avenue/SR 58 EB ramp                 | Signal         | C         | 32.8                | C       | 25.5                | C         | 30.7                | C       | 25.7                |
| 73. Chester Avenue/Ming Avenue                   | Signal*        | D         | 39.4                | D       | 36.6                | C         | 34.1                | D       | 48.5                |
| 74. Union Avenue/Brundage Lane                   | Signal         | C         | 29.4                | C       | 25.7                | D         | 46.8                | D       | 43.4                |
| 75. Brundage Lane/SR 58 WB ramps                 | Signal         | C         | 34.5                | C       | 28.7                | C         | 23.4                | D       | 41.0                |
| 76. Union Avenue/SR 58 EB ramps                  | Signal         | B         | 13.8                | B       | 12.4                | B         | 18.0                | B       | 15.8                |
| 77. Cottonwood Road–MLK/Brundage Lane            | Signal         | C         | 23.4                | C       | 24.8                | C         | 28.8                | C       | 27.5                |
| 78. Cottonwood Road–Brundage Lane/SR 58 WB ramps | Signal         | C         | 26.0                | D       | 35.7                | C         | 27.3                | C       | 32.9                |
| 79. Cottonwood Road/SR 58 EB ramps               | Signal         | B         | 16.9                | B       | 14.1                | B         | 15.8                | B       | 15.7                |

\*LOS summary based on SYNCHRO 6

Source: Parsons

## 4.4 Traffic Performance of Build Alternative A

Alternative A proposes to connect the Westside Parkway to State Route 58 east near Cottonwood Road by means of a new freeway. Alternative A would begin at the Westside Parkway in between the Mohawk Street interchange and the Coffee Road interchange and turn in a southeasterly direction. It would then span the Kern River, Truxtun Avenue, Carrier Canal, and Stockdale Highway before joining the existing State Route 58 east at its existing terminus near the State Route 58/State Route 99 interchange. Improvements on State Route 58 would continue to extend through the H Street and Chester Avenue interchange to Cottonwood Road. Figure 4-7 illustrates the proposed alignment of build alternative A and the limits of new construction on State Route 58, State Route 99 and the Westside Parkway.

State Route 58 would maintain its existing connections to State Route 99 by means of freeway to freeway connectors. The existing westbound State Route 58 to northbound State Route 99 connector, southbound State Route 99 to eastbound State Route 58 connector, and northbound State Route 99 to eastbound State Route 58 would be preserved with modifications. New branch connectors would be constructed for the eastbound State Route 58 to southbound State Route 99, and northbound State Route 99 to westbound State Route 58 movements.

Auxiliary lanes would be provided on State Route 99 to accommodate the additional traffic from these branch connectors. The limits of improvements on State Route 99 would extend from the interchange at State Route 58 to the Wilson Road overcrossing. All ramps in this vicinity would have to be realigned to provide for the additional lanes. The Wible Road on- and off-ramps south of the existing State Route 99/State Route 58 interchange would be removed to accommodate the northbound State Route 99 on ramp from Ming Avenue. The Stockdale Avenue off ramp from southbound State Route 99 to the eastbound State Route 58 connector would be removed. Local access from Real Road to State Route 58 and to southbound State Route 99 would also be removed. The configuration of these freeway segments, insofar as the number of lanes, interchange on- and off-ramps and traffic demand volumes, are illustrated on Figure 4-8.

The new freeway would bisect existing business parks and residential neighborhoods. The following roads would cross under or over the proposed freeway alignment:

- Truxtun Avenue
- Lennox Avenue and California Avenue
- Business Center Drive
- Stockdale Highway and Montclair Street
- Stine Road
- South Real Road

The potential closure of Frazier Avenue, Westwood Way, McDonald Way, Curran Street, Griffith Street, Jones Street and Williamson Way would modify existing circulation.

To provide an overall indication of the impact of constructing the Westside Parkway to State Route 58 east connector along the alternative A alignment, a computer generated map was provided previously as Figure 3-9 which illustrates the difference between the 2038 alternative A and no-build daily traffic volumes, as assigned by the travel forecast model. Given this reassignment or rearrangement of travel patterns, Figure 4-9 illustrates the resulting location and severity of traffic congestion along Westside Parkway, Rosedale Highway/24th Street, State Route 99 and connecting roadway lengths.

Insofar as specific freeway performance data, Table 4-15 presents AM peak hour measures of effectiveness for mainline segments, while Table 4-16 reports PM peak hour results as simulated

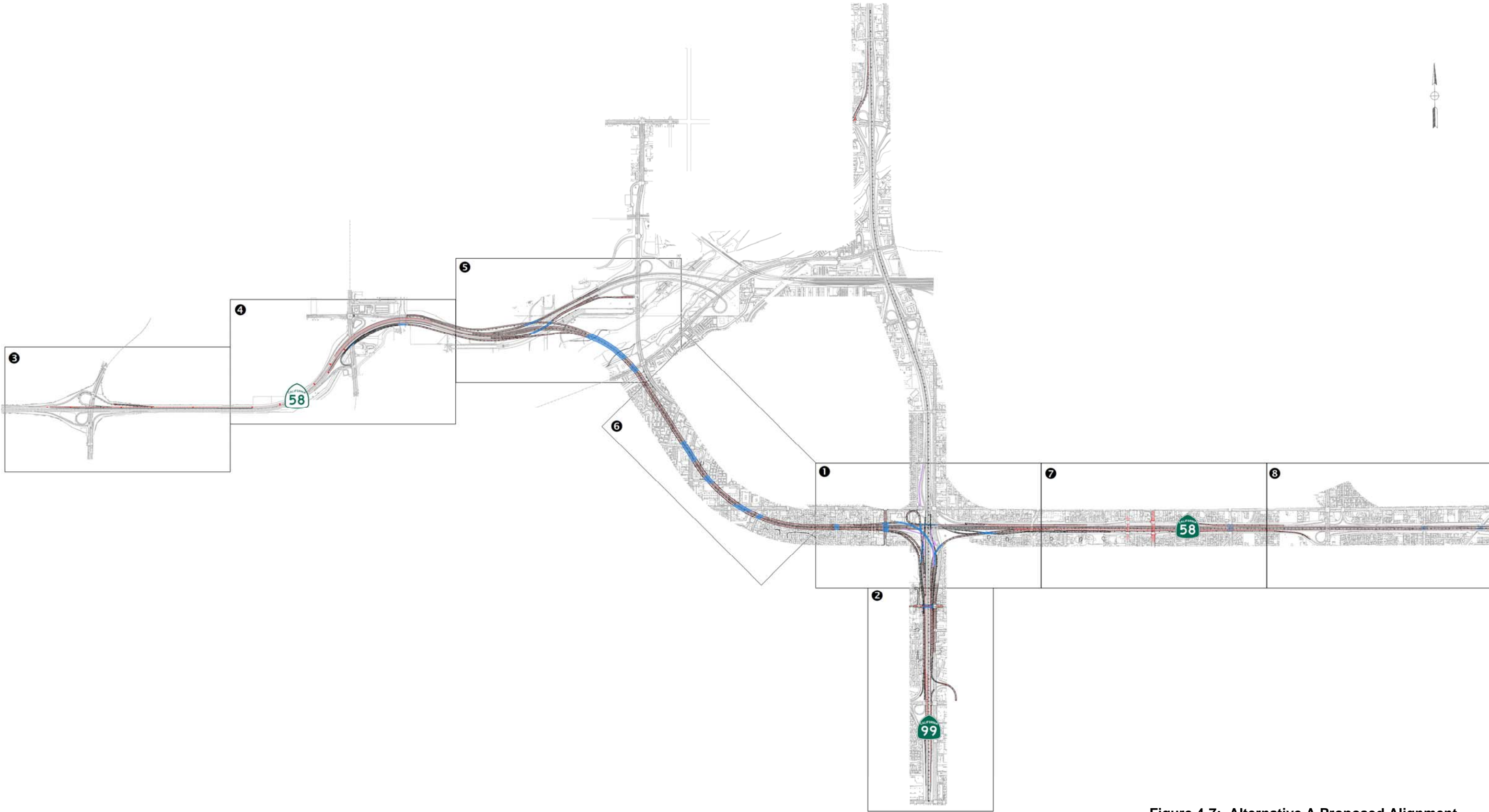


Figure 4-7: Alternative A Proposed Alignment

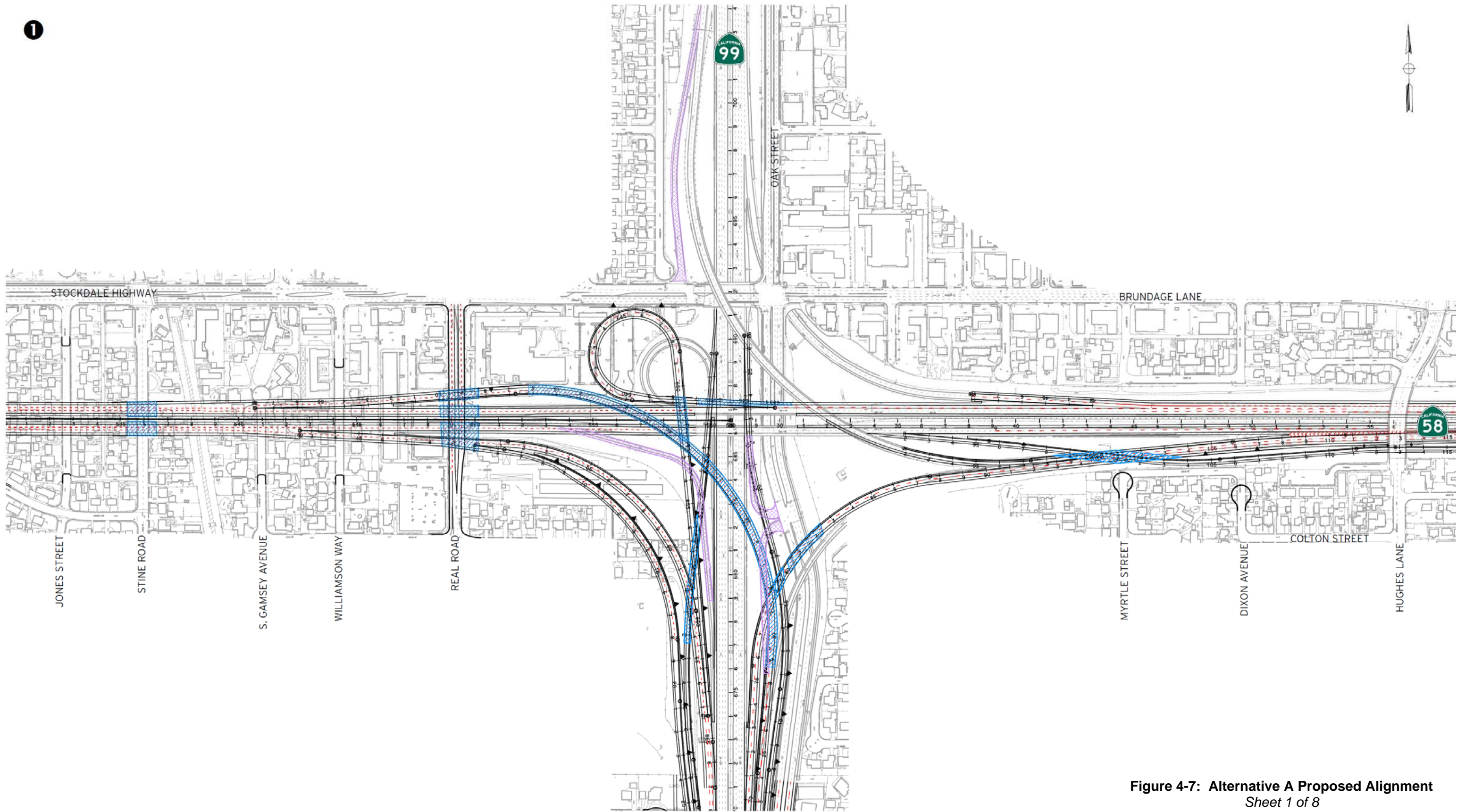


Figure 4-7: Alternative A Proposed Alignment  
Sheet 1 of 8

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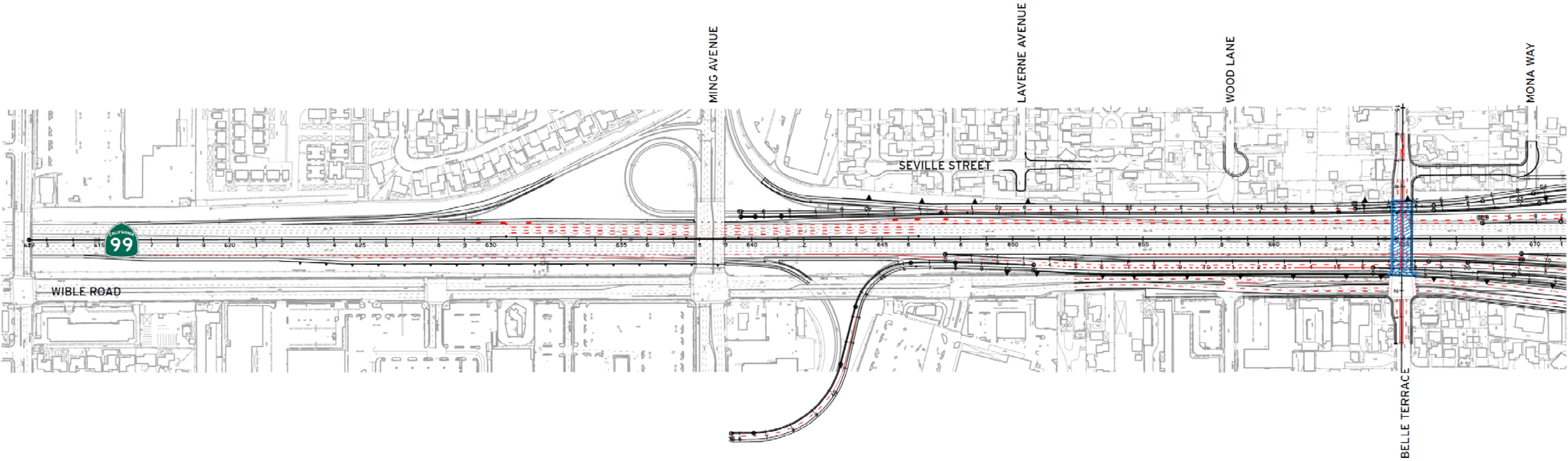
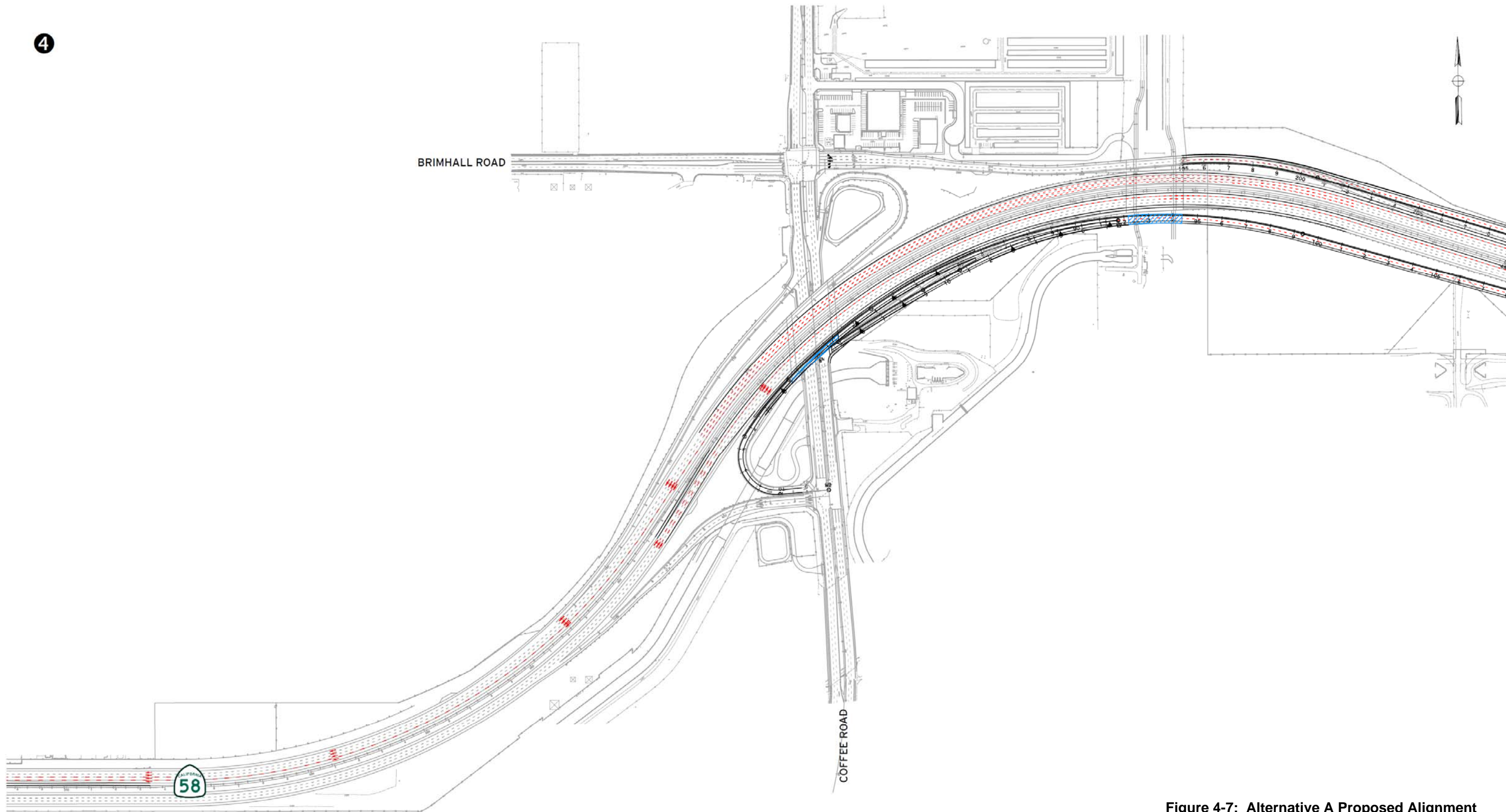


Figure 4-7: Alternative A Proposed Alignment  
Sheet 2 of 8



**PARSONS**



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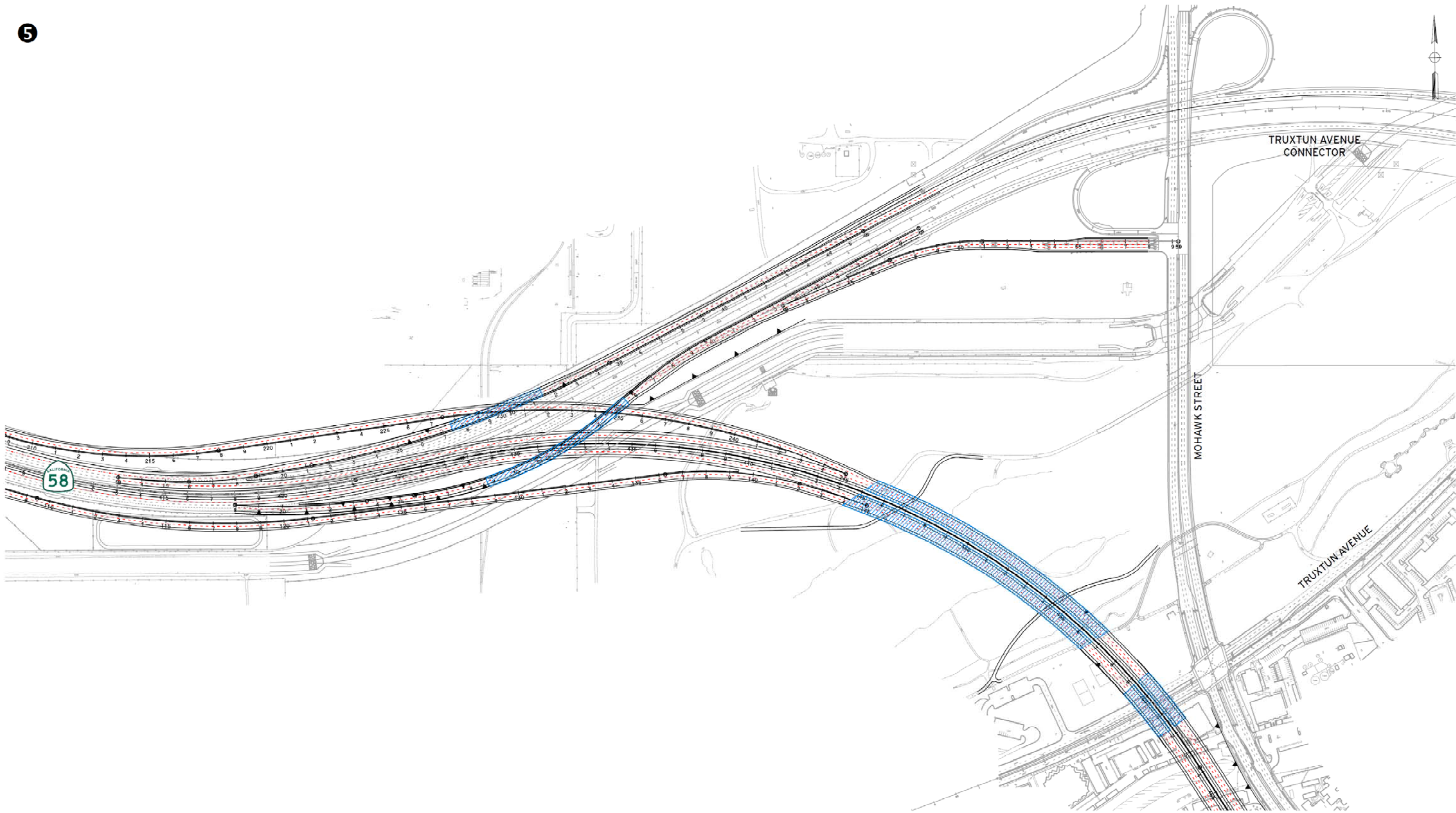


Figure 4-7: Alternative A Proposed Alignment  
Sheet 5 of 8

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Figure 4-7: Alternative A Proposed Alignment  
Sheet 6 of 8



Figure 4-7: Alternative A Proposed Alignment  
Sheet 7 of 8

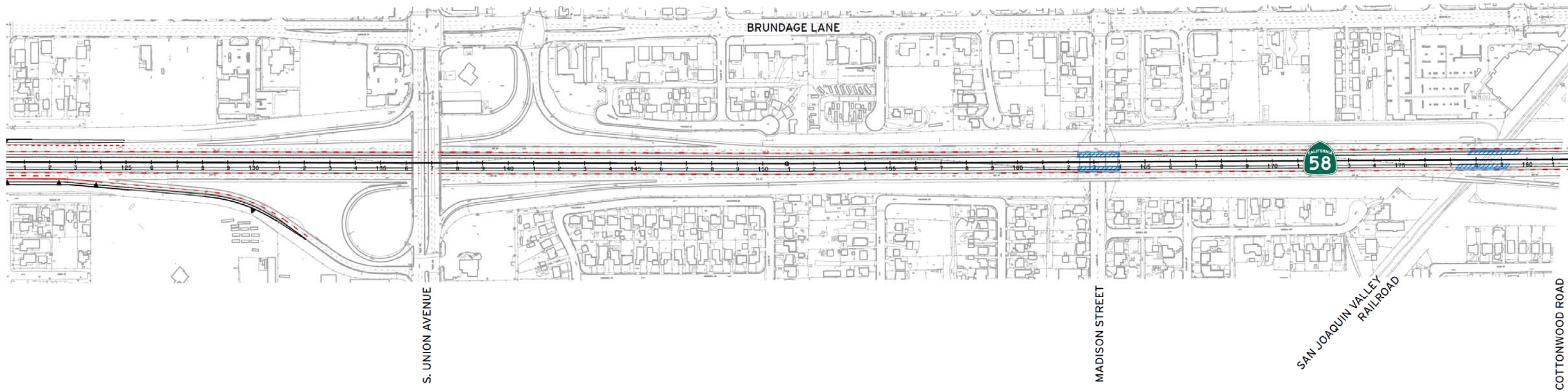
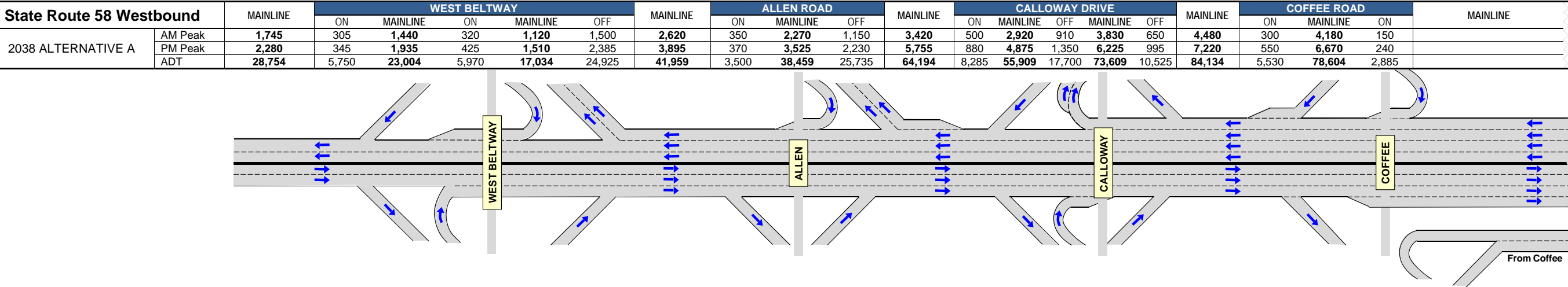


Figure 4-7: Alternative A Proposed Alignment  
Sheet 8 of 8

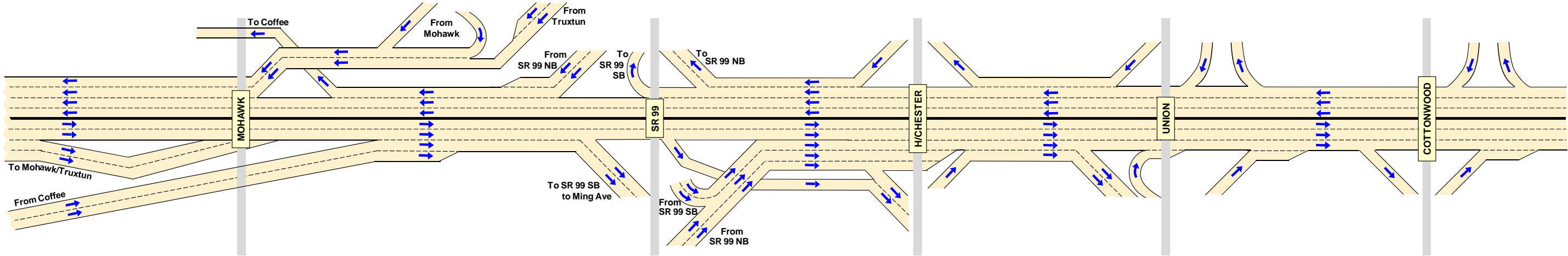
A. State Route 58 and Westside Parkway



↑  
N  
NOT TO SCALE

| State Route 58 Eastbound |         | MAINLINE | WEST BELTWAY |          |        |          |       | MAINLINE | ALLEN ROAD |          |        | MAINLINE | CALLOWAY DRIVE |          |        |          |        | MAINLINE | COFFEE ROAD |  | MAINLINE |
|--------------------------|---------|----------|--------------|----------|--------|----------|-------|----------|------------|----------|--------|----------|----------------|----------|--------|----------|--------|----------|-------------|--|----------|
|                          |         |          | OFF          | MAINLINE | ON     | MAINLINE | ON    |          | OFF        | MAINLINE | ON     |          | OFF            | MAINLINE | ON     | MAINLINE | ON     |          | OFF         |  |          |
| 2038 ALTERNATIVE A       | AM Peak | 2,230    | 745          | 1,485    | 1,525  | 3,010    | 290   | 3,300    | 380        | 2,920    | 2,000  | 4,920    | 960            | 3,960    | 940    | 4,900    | 1,150  | 6,050    | 1,025       |  | 5,025    |
|                          | PM Peak | 2,220    | 870          | 1,350    | 1,340  | 2,690    | 275   | 2,965    | 310        | 2,655    | 1,875  | 4,530    | 800            | 3,730    | 1,040  | 4,770    | 1,110  | 5,880    | 825         |  | 5,055    |
|                          | ADT     | 28,605   | 11,090       | 17,515   | 18,820 | 36,335   | 3,450 | 39,785   | 4,595      | 35,190   | 24,660 | 59,850   | 11,800         | 48,050   | 11,555 | 59,605   | 15,275 | 74,880   | 11,735      |  | 63,145   |

| MAINLINE | MOHAWK STREET/TRUXTUN AVENUE |          |            |        | MAINLINE | STATE ROUTE 99 SYSTEM INTERCHANGE |          |        |          |        | MAINLINE | H ST/CHESTER AVE |        |          | MAINLINE | UNION AVENUE |       |        |          |        | MAINLINE | COTTONWOOD ROAD |       |        | MAINLINE | State Route 58<br>Westbound |  |
|----------|------------------------------|----------|------------|--------|----------|-----------------------------------|----------|--------|----------|--------|----------|------------------|--------|----------|----------|--------------|-------|--------|----------|--------|----------|-----------------|-------|--------|----------|-----------------------------|--|
|          | MOHAWK/ TRUXTUN ON           | MAINLINE | COFFEE OFF |        |          | ON                                | MAINLINE | OFF    | MAINLINE | OFF    |          |                  | ON     | MAINLINE |          | OFF          |       | ON     | MAINLINE | ON     |          | MAINLINE        | OFF   |        |          |                             |  |
| 4,030    | 2,160                        | 1,870    | 1,950      | 3,820  | 1,500    | 2,320                             | 1,200    | 3,520  | 1,185    | 4,705  | 635      | 4,070            | 1,030  | 5,100    | 565      | 4,535        | 365   | 4,170  | 1,180    | 5,350  | 315      | 5,035           | 235   | 5,270  | AM Peak  | 2038                        |  |
| 6,430    | 3,780                        | 2,650    | 1,575      | 4,225  | 1,630    | 2,595                             | 1,225    | 3,820  | 1,120    | 4,940  | 660      | 4,280            | 1,115  | 5,395    | 770      | 4,625        | 360   | 4,265  | 990      | 5,255  | 530      | 4,725           | 305   | 5,030  | PM Peak  | ALTERNATIVE                 |  |
| 75,719   | 42,215                       | 33,504   | 23,775     | 57,279 | 22,400   | 34,879                            | 14,850   | 49,729 | 16,050   | 65,779 | 12,410   | 53,369           | 16,925 | 70,294   | 9,644    | 60,650       | 4,980 | 55,670 | 13,220   | 68,890 | 5,810    | 63,080          | 3,205 | 66,285 | ADT      | A                           |  |



| MOHAWK STREET/TRUXTUN AVENUE/COFFEE ROAD |  |          |           |        | MAINLINE | STATE ROUTE 99 SYSTEM INTERCHANGE |              |          |        |        | MAINLINE | H ST/CHESTER AVE |        |        | MAINLINE | UNION AVENUE |       |          |       |          | MAINLINE | COTTONWOOD ROAD |       |          | MAINLINE | State Route 58<br>Eastbound |  |
|--|--|----------|-----------|--------|----------|-----------------------------------|--------------|----------|--------|--------|----------|------------------|--------|--------|----------|--------------|-------|----------|-------|----------|----------|-----------------|-------|----------|----------|-----------------------------|--|
| MOHAWK/TRUXTUN OFF                       |  | MAINLINE | COFFEE ON | OFF    |          | MAINLINE                          | TO H/CHESTER | MAINLINE | ON     | OFF    |          | MAINLINE         | ON     | OFF    |          | MAINLINE     | ON    | MAINLINE | OFF   | MAINLINE |          | ON              | OFF   | MAINLINE |          |                             |  |
| 3,090                                    |  | 1,935    | 1,875     | 3,810  | 1,880    | 1,930                             | 282          | 1,648    | 2,210  | 3,858  | 323      | 3,535            | 1,025  | 4,560  | 1,035    | 3,525        | 340   | 3,865    | 325   | 4,190    | 630      | 3,560           | 310   | 3,870    | AM Peak  | 2038<br>ALTERNATIVE<br>A    |  |
| 2,700                                    |  | 2,355    | 2,170     | 4,525  | 2,170    | 2,355                             | 308          | 2,047    | 3,105  | 5,152  | 407      | 4,745            | 1,190  | 5,935  | 1,025    | 4,910        | 665   | 5,575    | 575   | 6,150    | 905      | 5,245           | 300   | 5,545    | PM Peak  |                             |  |
| 36,230                                   |  | 26,915   | 29,495    | 56,410 | 18,835   | 37,575                            | 4,694        | 32,881   | 35,835 | 68,716 | 6,286    | 62,430           | 12,940 | 75,370 | 16,745   | 58,625       | 6,535 | 65,160   | 5,140 | 70,300   | 8,095    | 62,205          | 4,020 | 66,225   | ADT      |                             |  |

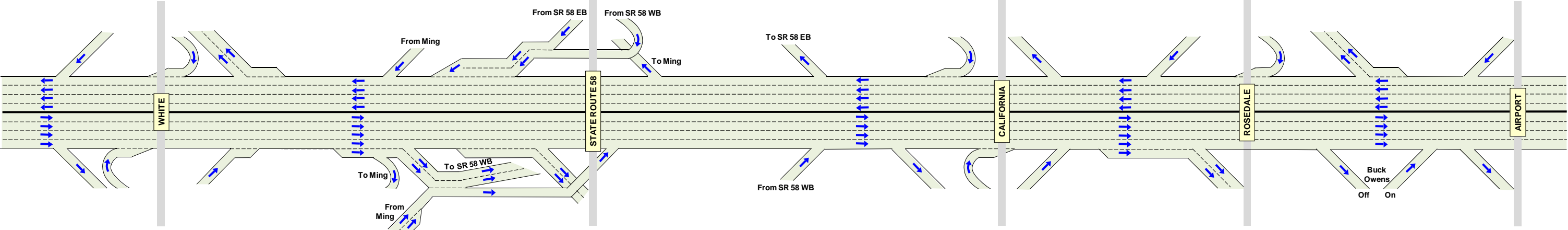
Figure 4-8: Year 2038 Alternative A Freeway Lane Configuration and Forecast Traffic Volumes (1 of 2)

B. State Route 99



NOT TO SCALE

| State Route 99<br>Southbound |         | MAINLINE | WHITE LANE |          |       |          |        | MAINLINE | MING AVENUE/STATE ROUTE 58 |          |             |          |             |          | MAINLINE | CALIFORNIA AVENUE |        |          | MAINLINE | ROSEDALE HIGHWAY |        |          |        |          | MAINLINE | AIRPORT<br>DRIVE | MAINLINE |        |
|------------------------------|---------|----------|------------|----------|-------|----------|--------|----------|----------------------------|----------|-------------|----------|-------------|----------|----------|-------------------|--------|----------|----------|------------------|--------|----------|--------|----------|----------|------------------|----------|--------|
|                              |         |          | ON         | MAINLINE | ON    | MAINLINE | OFF    |          | MING<br>ON                 | MAINLINE | SR 58<br>ON | MAINLINE | MING<br>OFF | MAINLINE |          | SR 58 EB<br>OFF   | ON     | MAINLINE |          | OFF              | ON     | MAINLINE | ON     | MAINLINE |          | OFF              |          | ON     |
| 2038<br>ALTERNATIVE<br>A     | AM Peak | 5,565    | 445        | 5,120    | 260   | 4,860    | 1,670  | 6,530    | 785                        | 5,745    | 2,525       | 3,220    | 935         | 4,155    | 955      | 5,110             | 560    | 4,550    | 1,495    | 6,045            | 835    | 5,210    | 1,100  | 4,110    | 1,375    | 5,485            | 1,450    | 4,035  |
|                              | PM Peak | 7,560    | 645        | 6,915    | 550   | 6,365    | 2,070  | 8,435    | 845                        | 7,590    | 2,740       | 4,850    | 1,205       | 6,055    | 1,440    | 7,495             | 940    | 6,555    | 1,655    | 8,210            | 1,340  | 6,870    | 1,375  | 5,495    | 1,310    | 6,805            | 2,070    | 4,735  |
|                              | ADT     | 95,510   | 9,505      | 86,005   | 7,510 | 78,495   | 20,875 | 99,370   | 10,715                     | 88,655   | 25,815      | 62,840   | 15,435      | 78,275   | 15,715   | 93,990            | 10,325 | 83,665   | 21,800   | 105,465          | 13,125 | 92,340   | 16,000 | 76,340   | 15,300   | 91,640           | 24,105   | 67,535 |



| State Route 99<br>Northbound |         | MAINLINE | WHITE LANE |          |        |          |       | MAINLINE | MING AVENUE/STATE ROUTE 58 |          |              |          |              |          |         |          | MAINLINE | CALIFORNIA AVENUE |       |          |        |          | MAINLINE | ROSEDALE HIGHWAY/BUCK OWENS BLVD |        |          |       |          | MAINLINE | AIRPORT DRIVE | MAINLINE |        |
|------------------------------|---------|----------|------------|----------|--------|----------|-------|----------|----------------------------|----------|--------------|----------|--------------|----------|---------|----------|----------|-------------------|-------|----------|--------|----------|----------|----------------------------------|--------|----------|-------|----------|----------|---------------|----------|--------|
|                              |         |          | OFF        | MAINLINE | ON     | MAINLINE | ON    |          | MING OFF                   | MAINLINE | SR 58 WB OFF | MAINLINE | SR 58 EB OFF | MAINLINE | MING ON | MAINLINE |          | SR 58 WB ON       | OFF   | MAINLINE | ON     | MAINLINE |          | ON                               | OFF    | MAINLINE | ON    | MAINLINE |          | OFF           |          |        |
|                              |         |          |            |          |        |          |       |          |                            |          |              |          |              |          |         |          |          |                   |       |          |        |          |          |                                  |        |          |       |          |          |               |          | OFF    |
| 2038<br>ALTERNATIVE<br>A     | AM Peak | 7,075    | 1,125      | 5,950    | 1,640  | 7,590    | 695   | 8,285    | 915                        | 7,370    | 1,125        | 6,245    | 1,255        | 4,990    | 1,000   | 5,990    | 1,185    | 7,175             | 1,150 | 6,025    | 1,050  | 7,075    | 480      | 7,555                            | 1,965  | 5,590    | 795   | 4,795    | 720      | 5,515         | 1,740    | 3,775  |
|                              | PM Peak | 6,655    | 1,080      | 5,575    | 1,655  | 7,230    | 685   | 7,915    | 850                        | 7,065    | 1,130        | 5,935    | 1,665        | 4,270    | 850     | 5,120    | 1,120    | 6,240             | 710   | 5,530    | 1,375  | 6,905    | 900      | 7,805                            | 1,800  | 6,005    | 400   | 5,605    | 790      | 6,395         | 1,365    | 5,030  |
|                              | ADT     | 95,000   | 11,675     | 83,325   | 18,885 | 102,210  | 8,790 | 111,000  | 11,300                     | 99,700   | 15,500       | 84,200   | 20,120       | 64,080   | 9,590   | 73,670   | 16,050   | 89,720            | 5,800 | 83,920   | 16,900 | 100,820  | 7,200    | 108,020                          | 22,255 | 85,765   | 6,875 | 78,890   | 10,800   | 89,690        | 21,750   | 67,940 |

Figure 4-8: Year 2038 Alternative A  
Freeway Lane Configuration and  
Forecast Traffic Volumes (2 of 2)

by the CORSIM traffic model. Segments experiencing LOS E or F performance in the design year of 2038 are highlighted.

With respect to 2038 AM peak hour conditions, Table 4-15 indicates that only one short segment of the freeway system, northbound State Route 99 between the White Lane loop on-ramp and the White Lane diagonal on-ramp, will operate at LOS E. Of the 74 freeway segments analyzed, 61 will operate at LOS C or better, 12 at LOS D, and one at LOS E, as mentioned above. Speeds will range between 55 and 64 mph and nearly all of the demand volumes will be served.

During the PM peak hour, traffic operations will be nearly as good as AM peak hour conditions. Of the 74 freeway segments analyzed, 50 will operate at LOS C or better, 21 segments will operate at LOS D, and three segments will operate at LOS E or F.

- Southbound State Route 99 between the Rosedale Highway loop on-ramp and the Rosedale Highway diagonal on-ramp (LOS E)
- Southbound State Route 99 between the Rosedale Highway diagonal on-ramp and the California Avenue off-ramp (LOS F)
- Southbound State Route 99 between the Ming Avenue on-ramp and the White Lane off-ramp (LOS F).

The percentage of demand traffic volumes served will fall below 90 percent in two reaches of State Route 99.

- Northbound between the California loop on-ramp and the Airport Drive off-ramp (85 to 88 percent served)
- Southbound between the Ming Avenue on-ramp and south of the White Lane diagonal on-ramp (86 to 89 percent served).

Along the Westside Parkway/State Route 58, speeds will range between 58 and 63 mph. Along State Route 99, speeds, for the most part, will range between 51 and 63 mph.

Motorists will experience slower speeds, below 50 mph, on four segments of southbound State Route 99 during the PM peak hour.

In addition to analyzing freeway mainline segments, freeway on-ramp and off-ramp performance and merge/diverging conditions of the freeways were analyzed using the same CORSIM traffic simulation model. These results are reported in Tables 4-17 through 4-20. In cases where a low percentage of on-ramp traffic is served, such as the White Lane loop on-ramp to northbound State Route 99, traffic would be expected to spill back onto local streets until such time that motorists divert to alternate routes.

Traffic level of service at ramp termini and study area intersections are reported in Table 4-21 for build alternative A conditions. The proposed traffic lane geometric configurations and demand traffic volumes are illustrated on Figure 3-11. For the ramp terminal and other study intersections reported in Table 4-21, all but eight intersections perform at LOS D or better during year 2038 AM peak hour demand conditions; while 16 of 79 intersections experience LOS E or F conditions during the PM peak hour. This performance is improved from the no-build condition, as discussed in Chapter 6.

Detailed level of service input parameters and output statistics for each study intersection are provided in Volume II (part 1 of 2) of this report.

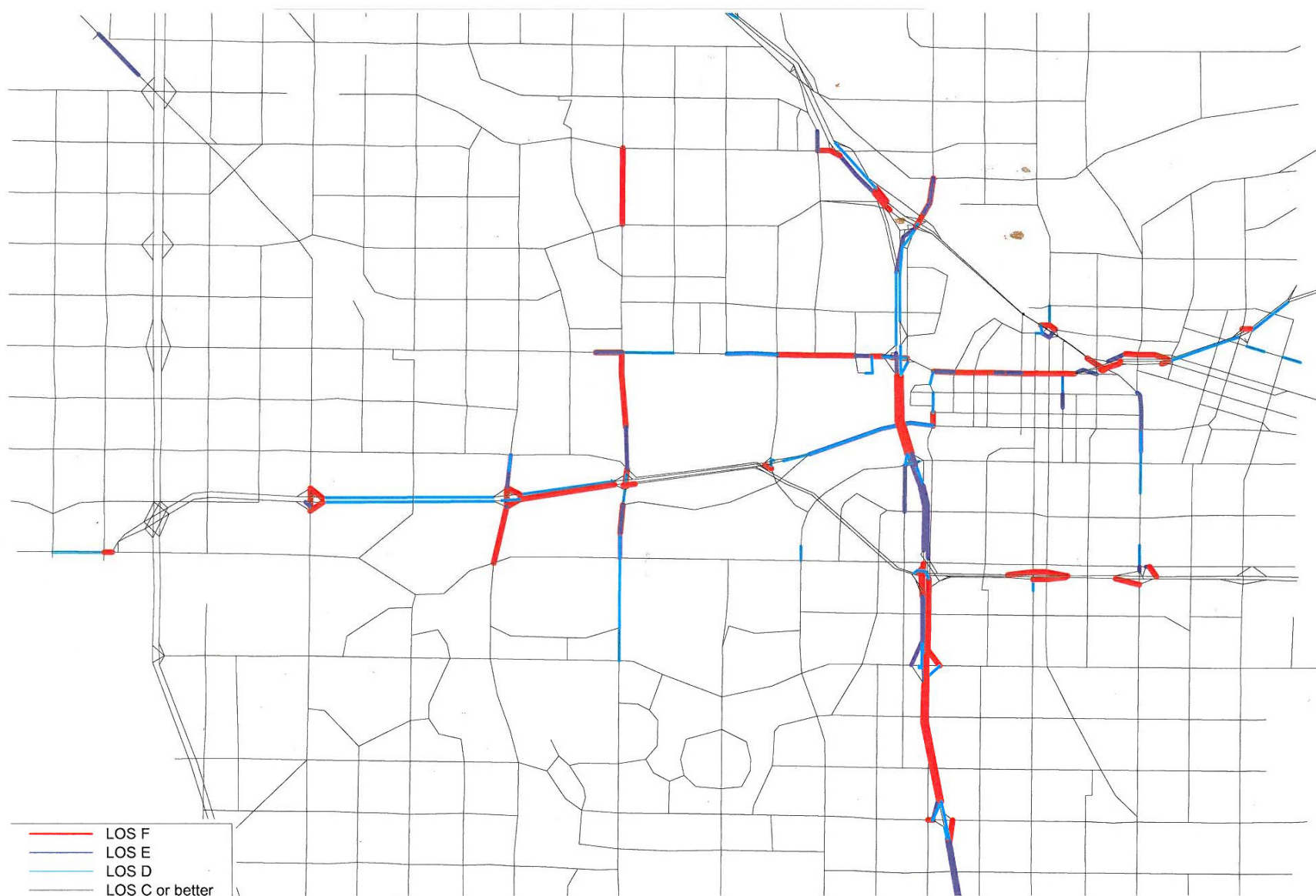


Figure 4-9: Locations of Congestion for Alternative A

Table 4-15. AM Peak Hour Measures of Effectiveness for Alternative A—Freeway Mainline Segments (1 of 2)

| FREEWAY SEGMENT   | YEAR 2018       |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | YEAR 2038       |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|--|
|   | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/ LANES<br>(vphI) | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/ LANES<br>(vphI) |  |
| State Route 99 NB Mainline  |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 99 NB south end of the network to White Lane off-ramp                                    | 5,070           | 5,070           | 100%        | 50                          | 1                          | 63             | 20                     | C                 | 50                              | 4462                      | 71                        | 2                         | 1271                                      | 7,075           | 7,075           | 100%        | 55                          | 6                          | 59             | 31                     | D                 | 55                              | 6310                      | 107                       | 11                        | 1772                                      |  |
| White Lane off-ramp to White Lane loop on-ramp  | 4,390           | 4,390           | 100%        | 19                          | 1                          | 63             | 18                     | B                 | 69                              | 1473                      | 24                        | 1                         | 1100                                      | 5,950           | 5,848           | 98%         | 20                          | 1                          | 61             | 24                     | C                 | 74                              | 1959                      | 32                        | 2                         | 1462                                      |  |
| White Lane loop on-ramp to White Lane direct on-ramp  | 6,020           | 5,845           | 97%         | 7                           | 1                          | 53             | 28                     | D                 | 77                              | 614                       | 12                        | 2                         | 1461                                      | 7,590           | 7,162           | 94%         | 8                           | 2                          | 47             | 38                     | E                 | 82                              | 755                       | 16                        | 5                         | 1791                                      |  |
| White Lane direct on-ramp to Ming Avenue off-ramp   | 6,724           | 6,623           | 98%         | 77                          | 5                          | 60             | 25                     | C                 | 154                             | 8566                      | 142                       | 9                         | 1325                                      | 8,285           | 8,015           | 97%         | 80                          | 8                          | 58             | 32                     | D                 | 162                             | 10357                     | 178                       | 18                        | 1603                                      |  |
| Ming Avenue off-ramp to C-D (SR 58 WB) off-ramp   | 5,985           | 5,985           | 100%        | 11                          | 1                          | 61             | 20                     | C                 | 165                             | 1166                      | 19                        | 1                         | 1220                                      | 7,370           | 7,370           | 100%        | 11                          | 1                          | 60             | 25                     | C                 | 174                             | 1411                      | 24                        | 2                         | 1475                                      |  |
| SR 58 WB off-ramp to SR 58 EB off-ramp  | 5,140           | 5,140           | 100%        | 27                          | 1                          | 61             | 19                     | C                 | 192                             | 2362                      | 39                        | 2                         | 1152                                      | 6,245           | 6,117           | 98%         | 27                          | 2                          | 60             | 23                     | C                 | 201                             | 2783                      | 46                        | 3                         | 1359                                      |  |
| SR 58 EB off-ramp to Ming Avenue on-ramp  | 4,114           | 4,114           | 100%        | 25                          | 1                          | 63             | 17                     | B                 | 217                             | 1824                      | 29                        | 1                         | 1051                                      | 4,990           | 4,990           | 100%        | 25                          | 1                          | 62             | 20                     | C                 | 226                             | 2167                      | 35                        | 1                         | 1249                                      |  |
| Ming Avenue on-ramp to SR 58 on-ramp  | 4,915           | 4,915           | 100%        | 8                           | 1                          | 61             | 20                     | C                 | 224                             | 634                       | 10                        | 1                         | 1238                                      | 5,990           | 5,888           | 98%         | 8                           | 1                          | 60             | 25                     | C                 | 234                             | 754                       | 13                        | 1                         | 1472                                      |  |
| SR 58 on-ramp to California Avenue off-ramp   | 6,014           | 6,014           | 100%        | 39                          | 3                          | 59             | 25                     | C                 | 264                             | 3951                      | 67                        | 6                         | 1523                                      | 7,175           | 7,163           | 100%        | 40                          | 5                          | 58             | 30                     | D                 | 274                             | 4660                      | 81                        | 9                         | 1791                                      |  |
| California Avenue off-ramp to California Avenue loop on-ramp                                | 5,044           | 5,041           | 100%        | 16                          | 1                          | 62             | 20                     | C                 | 280                             | 1424                      | 23                        | 1                         | 1260                                      | 6,025           | 6,025           | 100%        | 16                          | 1                          | 62             | 24                     | C                 | 291                             | 1701                      | 28                        | 1                         | 1506                                      |  |
| California Avenue loop on-ramp to California Avenue direct on-ramp                          | 5,904           | 5,691           | 96%         | 9                           | 1                          | 60             | 24                     | C                 | 289                             | 846                       | 14                        | 1                         | 1423                                      | 7,075           | 6,780           | 96%         | 9                           | 1                          | 58             | 29                     | D                 | 300                             | 1008                      | 17                        | 2                         | 1695                                      |  |
| California Avenue direct on-ramp to Rosedale Highway off-ramp                               | 6,273           | 5,842           | 93%         | 32                          | 2                          | 60             | 23                     | C                 | 320                             | 3060                      | 51                        | 3                         | 1298                                      | 7,555           | 6,881           | 91%         | 33                          | 3                          | 57             | 28                     | D                 | 333                             | 3572                      | 62                        | 6                         | 1529                                      |  |
| Rosedale Highway off-ramp to Buck Owens Boulevard/Sillect Avenue off-ramp                   | 4,394           | 4,227           | 96%         | 16                          | 1                          | 63             | 17                     | B                 | 337                             | 1201                      | 19                        | 1                         | 1057                                      | 5,590           | 5,192           | 93%         | 17                          | 1                          | 61             | 21                     | C                 | 349                             | 1475                      | 24                        | 1                         | 1298                                      |  |
| Buck Owens Boulevard/Sillect Avenue off-ramp to Buck Owens Boulevard/Sillect Avenue on-ramp | 3,824           | 3,722           | 97%         | 24                          | 1                          | 63             | 15                     | B                 | 361                             | 1547                      | 25                        | 1                         | 931                                       | 4,795           | 4,432           | 92%         | 24                          | 1                          | 63             | 18                     | B                 | 373                             | 1842                      | 29                        | 1                         | 1108                                      |  |
| Buck Owens Boulevard/Sillect Avenue on-ramp to Airport Drive off-ramp                       | 4,224           | 4,088           | 97%         | 34                          | 2                          | 61             | 17                     | B                 | 394                             | 2324                      | 38                        | 2                         | 1022                                      | 5,515           | 5,124           | 93%         | 35                          | 3                          | 59             | 22                     | C                 | 408                             | 2914                      | 49                        | 4                         | 1281                                      |  |
| Airport Dr off-ramp to SR 99 NB north end of the network                                    | 2,719           | 2,609           | 96%         | 40                          | 1                          | 63             | 10                     | A                 | 434                             | 1842                      | 29                        | 1                         | 652                                       | 3,775           | 3,556           | 94%         | 41                          | 1                          | 63             | 14                     | B                 | 448                             | 2512                      | 40                        | 1                         | 889                                       |  |
| State Route 99 SB Mainline  |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 99 SB north end of the network to Airport Drive on-ramp                                  | 3,210           | 3,210           | 100%        | 48                          | 1                          | 64             | 13                     | B                 | 48                              | 2749                      | 43                        | 1                         | 806                                       | 4,035           | 4,035           | 100%        | 48                          | 1                          | 64             | 16                     | B                 | 48                              | 3460                      | 54                        | 1                         | 1014                                      |  |
| Airport Drive on-ramp to Rosedale Highway off-ramp  | 4,490           | 4,490           | 100%        | 31                          | 2                          | 62             | 18                     | B                 | 79                              | 2393                      | 39                        | 2                         | 998                                       | 5,485           | 5,450           | 99%         | 32                          | 3                          | 60             | 22                     | C                 | 80                              | 2919                      | 49                        | 4                         | 1211                                      |  |
| Rosedale Highway off-ramp to Rosedale Highway loop on-ramp                                  | 3,830           | 3,830           | 100%        | 25                          | 1                          | 63             | 15                     | B                 | 104                             | 1650                      | 26                        | 1                         | 959                                       | 4,110           | 4,110           | 100%        | 25                          | 1                          | 63             | 16                     | B                 | 105                             | 1769                      | 28                        | 1                         | 1028                                      |  |
| Rosedale Highway loop on-ramp to Rosedale Highway direct on-ramp                            | 4,775           | 4,775           | 100%        | 10                          | 1                          | 57             | 18                     | C                 | 113                             | 727                       | 13                        | 1                         | 1200                                      | 5,210           | 5,210           | 100%        | 10                          | 1                          | 55             | 21                     | C                 | 115                             | 796                       | 14                        | 2                         | 1313                                      |  |
| Rosedale Highway direct on-ramp to California Avenue off-ramp                               | 5,510           | 5,510           | 100%        | 37                          | 3                          | 59             | 23                     | C                 | 150                             | 3361                      | 57                        | 5                         | 1385                                      | 6,045           | 6,045           | 100%        | 38                          | 5                          | 57             | 26                     | D                 | 153                             | 3676                      | 65                        | 8                         | 1518                                      |  |
| California Avenue off-ramp to California Avenue on-ramp                                     | 4,340           | 4,340           | 100%        | 13                          | 0                          | 62             | 17                     | B                 | 164                             | 1011                      | 16                        | 1                         | 1085                                      | 4,550           | 4,550           | 100%        | 13                          | 1                          | 62             | 19                     | C                 | 167                             | 1074                      | 17                        | 1                         | 1154                                      |  |
| California Avenue on-ramp to SR 58 EB off-ramp  | 4,805           | 4,805           | 100%        | 27                          | 2                          | 61             | 19                     | C                 | 191                             | 2218                      | 37                        | 2                         | 1202                                      | 5,110           | 5,110           | 100%        | 28                          | 2                          | 60             | 21                     | C                 | 194                             | 2399                      | 40                        | 3                         | 1299                                      |  |
| SR 58 EB off-ramp to Ming Avenue off-ramp   | 3,900           | 3,825           | 98%         | 28                          | 1                          | 62             | 15                     | B                 | 219                             | 1856                      | 30                        | 1                         | 956                                       | 4,155           | 4,155           | 100%        | 28                          | 1                          | 62             | 17                     | B                 | 223                             | 2053                      | 33                        | 1                         | 1058                                      |  |
| Ming Avenue off-ramp to SR 58 WB on-ramp  | 3,029           | 2,995           | 99%         | 22                          | 1                          | 63             | 12                     | B                 | 241                             | 1141                      | 18                        | 0                         | 749                                       | 3,220           | 3,220           | 100%        | 22                          | 1                          | 63             | 13                     | B                 | 244                             | 1257                      | 20                        | 1                         | 825                                       |  |
| SR 58 WB on-ramp to Ming Avenue on-ramp   | 4,614           | 4,530           | 98%         | 51                          | 2                          | 63             | 14                     | B                 | 292                             | 4048                      | 65                        | 2                         | 1007                                      | 5,745           | 5,745           | 100%        | 52                          | 3                          | 62             | 18                     | B                 | 296                             | 5174                      | 84                        | 4                         | 1287                                      |  |
| Ming Avenue on-ramp to White Lane off-ramp  | 5,129           | 5,041           | 98%         | 60                          | 3                          | 61             | 20                     | C                 | 352                             | 5172                      | 84                        | 4                         | 1260                                      | 6,530           | 6,516           | 100%        | 63                          | 6                          | 59             | 27                     | D                 | 360                             | 6749                      | 115                       | 11                        | 1629                                      |  |
| White Lane off-ramp to White Lane loop on-ramp  | 3,709           | 3,625           | 98%         | 19                          | 0                          | 63             | 14                     | B                 | 371                             | 1215                      | 19                        | 0                         | 806                                       | 4,860           | 4,841           | 100%        | 19                          | 1                          | 63             | 19                     | C                 | 379                             | 1623                      | 26                        | 1                         | 1076                                      |  |
| White Lane loop on-ramp to White Lane direct on-ramp  | 3,884           | 3,791           | 98%         | 10                          | 0                          | 63             | 15                     | B                 | 381                             | 642                       | 10                        | 0                         | 948                                       | 5,120           | 4,953           | 97%         | 10                          | 0                          | 62             | 20                     | C                 | 389                             | 839                       | 13                        | 1                         | 1238                                      |  |
| White Lane direct on-ramp to SR 99 SB south end of the network                              | 4,254           | 4,008           | 94%         | 52                          | 2                          | 63             | 16                     | B                 | 433                             | 3626                      | 58                        | 2                         | 1002                                      | 5,565           | 5,193           | 93%         | 52                          | 2                          | 62             | 21                     | C                 | 441                             | 4696                      | 75                        | 3                         | 1298                                      |  |
| State Route 99 NB Collector-Distributor   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 99 NB C-D on-ramp to Westside Parkway C-D off-ramp                                       | 2,010           | 2,010           | 100%        | 18                          | 1                          | 53             | 13                     | B                 | 26                              | 546                       | 10                        | 0                         | 823                                       | 2,500           | 2,500           | 100%        | 18                          | 1                          | 53             | 16                     | B                 | 26                              | 674                       | 13                        | 0                         | 1017                                      |  |
| State Route 99 SB Collector-Distributor   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Westside Parkway C-D on-ramp to SR 99 SB C-D on-ramp  | 1,585           | 1,547           | 98%         | 7                           | 0                          | 47             | 11                     | A                 | 15                              | 145                       | 3                         | 0                         | 773                                       | 2,525           | 2,525           | 100%        | 7                           | 1                          | 45             | 19                     | C                 | 16                              | 235                       | 5                         | 0                         | 1263                                      |  |
| <div></div>   | Bottleneck      |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| <div></div>   | Queue           |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |

**Table 4-15. AM Peak Hour Measures of Effectiveness for Alternative A—Freeway Mainline Segments (2 of 2)**

| Freeway Segment   | YEAR 2018          |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | YEAR 2038       |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
|---|--------------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|--|
|   | Demand<br>(vph)    | Served<br>(vph) | %<br>Served | Travel<br>Time<br>(sec/veh) | Delay<br>Time<br>(sec/veh) | Speed<br>(mph) | Density<br>(veh/ln/mi) | LOS<br>(HCM 2000) | Cumulative<br>Time<br>(sec/veh) | Vehicle<br>Miles<br>(VMT) | Vehicle<br>Hours<br>(VHT) | Vehicle<br>Delay<br>(VHD) | CORSIM Served<br>Volumes/<br>Lanes (vphl) | Demand<br>(vph) | Served<br>(vph) | %<br>Served | Travel<br>Time<br>(sec/veh) | Delay<br>Time<br>(sec/veh) | Speed<br>(mph) | Density<br>(veh/ln/mi) | LOS<br>(HCM 2000) | Cumulative<br>Time<br>(sec/veh) | Vehicle<br>Miles<br>(VMT) | Vehicle<br>Hours<br>(VHT) | Vehicle<br>Delay<br>(VHD) | CORSIM Served<br>Volumes/ Lanes<br>(vphl) |  |
| Westside Parkway EB Mainline  |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Westside Parkway west end of the network to West Beltway off-ramp             |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 2,230           | 2,230           | 100%        | 6                           | 2                          | 47             | 24                     | C                 | 6                               | 186                       | 4                         | 1                         | 1140                                      |  |
| West Beltway off-ramp to West Beltway loop on-ramp                            | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 1,485           | 1,485           | 100%        | 14                          | 1                          | 61             | 12                     | B                 | 20                              | 349                       | 6                         | 0                         | 743                                       |  |
| West Beltway loop on-ramp to West Beltway direct on-ramp                      |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 3,010           | 2,796           | 93%         | 9                           | 1                          | 61             | 15                     | B                 | 29                              | 436                       | 7                         | 0                         | 932                                       |  |
| West Beltway direct on-ramp to Allen Road off-ramp                            | 1,015              | 1,009           | 99%         | 83                          | 3                          | 61             | 8                      | A                 | 83                              | 1425                      | 23                        | 1                         | 504                                       | 3,300           | 3,073           | 93%         | 57                          | 2                          | 62             | 16                     | B                 | 86                              | 3023                      | 49                        | 2                         | 1024                                      |  |
| Allen Road off-ramp to Allen Road on-ramp                                     | 956                | 956             | 100%        | 32                          | 0                          | 64             | 5                      | A                 | 115                             | 559                       | 9                         | 0                         | 327                                       | 2,920           | 2,699           | 92%         | 33                          | 1                          | 63             | 14                     | B                 | 119                             | 1537                      | 24                        | 1                         | 900                                       |  |
| Allen Road on-ramp to Calloway Drive off-ramp                                 | 2,665              | 2,665           | 100%        | 59                          | 3                          | 62             | 14                     | B                 | 174                             | 2706                      | 44                        | 2                         | 889                                       | 4,920           | 4,665           | 95%         | 61                          | 4                          | 60             | 26                     | C                 | 180                             | 4745                      | 79                        | 6                         | 1555                                      |  |
| Calloway Drive off-ramp to Calloway Drive loop on-ramp                        | 2,140              | 2,138           | 100%        | 24                          | 0                          | 64             | 11                     | B                 | 198                             | 926                       | 14                        | 0                         | 713                                       | 3,960           | 3,796           | 96%         | 25                          | 1                          | 63             | 20                     | C                 | 204                             | 1645                      | 26                        | 1                         | 1265                                      |  |
| Calloway Drive loop on-ramp to Calloway Drive direct on-ramp                  | 2,880              | 2,833           | 98%         | 11                          | 1                          | 61             | 15                     | B                 | 209                             | 536                       | 9                         | 1                         | 944                                       | 4,900           | 4,653           | 95%         | 11                          | 1                          | 59             | 26                     | D                 | 216                             | 882                       | 15                        | 1                         | 1551                                      |  |
| Calloway Drive direct on-ramp to Coffee Road off-ramp                         | 3,940              | 3,907           | 99%         | 49                          | 3                          | 61             | 21                     | C                 | 258                             | 3273                      | 53                        | 3                         | 1302                                      | 6,050           | 5,867           | 97%         | 51                          | 5                          | 59             | 32                     | D                 | 267                             | 4956                      | 84                        | 8                         | 1956                                      |  |
| Coffee Road off-ramp to Truxtun Avenue/Mohawk Street off-ramp                 | 3,299              | 3,223           | 98%         | 58                          | 2                          | 62             | 13                     | B                 | 316                             | 3214                      | 51                        | 2                         | 921                                       | 5,025           | 4,836           | 96%         | 59                          | 3                          | 61             | 21                     | C                 | 326                             | 4821                      | 79                        | 4                         | 1382                                      |  |
| Truxtun Avenue off-ramp to Coffee Road on-ramps                               | 909                | 886             | 97%         | 31                          | 0                          | 65             | 7                      | A                 | 347                             | 494                       | 8                         | 0                         | 443                                       | 1,935           | 1,839           | 95%         | 32                          | 1                          | 63             | 15                     | B                 | 358                             | 1026                      | 16                        | 0                         | 919                                       |  |
| Coffee Road on-ramps to SR 99 SB and Ming Avenue C-D off-ramp                 | 2,311              | 2,254           | 98%         | 108                         | 3                          | 63             | 12                     | B                 | 455                             | 4247                      | 68                        | 2                         | 751                                       | 3,810           | 3,700           | 97%         | 111                         | 6                          | 61             | 20                     | C                 | 468                             | 6972                      | 114                       | 6                         | 1233                                      |  |
| SR 99 SB off-ramp (and C-D Ming Avenue) to H Street off-ramp                  | 1,181              | 1,134           | 96%         | 23                          | 0                          | 63             | 9                      | A                 | 478                             | 451                       | 7                         | 0                         | 567                                       | 1,930           | 1,836           | 95%         | 23                          | 1                          | 63             | 15                     | B                 | 491                             | 729                       | 12                        | 0                         | 918                                       |  |
| H Street off-ramp to SR 99 NB and SB on-ramp                                  | 921                | 872             | 95%         | 30                          | 0                          | 64             | 7                      | A                 | 507                             | 463                       | 7                         | 0                         | 436                                       | 1,648           | 1,564           | 95%         | 30                          | 1                          | 63             | 12                     | B                 | 522                             | 830                       | 13                        | 0                         | 782                                       |  |
| SR 99 NB and SB on-ramp to Chester Avenue on-ramp                             | 2,486              | 2,486           | 100%        | 46                          | 4                          | 61             | 9                      | A                 | 554                             | 1959                      | 32                        | 2                         | 718                                       | 3,535           | 3,408           | 96%         | 47                          | 4                          | 60             | 12                     | B                 | 569                             | 2662                      | 45                        | 4                         | 974                                       |  |
| Chester Avenue on-ramp to Union Avenue off-ramp                               | 3,236              | 3,236           | 100%        | 27                          | 1                          | 62             | 13                     | B                 | 580                             | 1490                      | 24                        | 1                         | 927                                       | 4,560           | 4,401           | 97%         | 27                          | 2                          | 61             | 18                     | C                 | 596                             | 2022                      | 33                        | 2                         | 1257                                      |  |
| Union Avenue off-ramp to Union Avenue loop on-ramp                            | 2,521              | 2,521           | 100%        | 17                          | 0                          | 63             | 13                     | B                 | 597                             | 736                       | 12                        | 0                         | 845                                       | 3,525           | 3,405           | 97%         | 17                          | 1                          | 63             | 18                     | C                 | 613                             | 989                       | 16                        | 1                         | 1135                                      |  |
| Union Avenue loop on-ramp to Union Avenue direct on-ramp                      | 2,841              | 2,797           | 98%         | 8                           | 0                          | 62             | 15                     | B                 | 605                             | 391                       | 6                         | 0                         | 932                                       | 3,865           | 3,698           | 96%         | 8                           | 0                          | 62             | 20                     | C                 | 621                             | 518                       | 8                         | 0                         | 1233                                      |  |
| Union Avenue direct on-ramp to Cottonwood Road off-ramp                       | 3,185              | 3,165           | 99%         | 31                          | 1                          | 62             | 17                     | B                 | 636                             | 1681                      | 27                        | 1                         | 1055                                      | 4,190           | 4,044           | 97%         | 31                          | 2                          | 62             | 22                     | C                 | 652                             | 2149                      | 35                        | 2                         | 1348                                      |  |
| Cottonwood Road off-ramp to Cottonwood Road on-ramp                           | 2,771              | 2,746           | 99%         | 28                          | 1                          | 63             | 14                     | B                 | 663                             | 1328                      | 21                        | 1                         | 915                                       | 3,560           | 3,445           | 97%         | 28                          | 1                          | 63             | 18                     | C                 | 680                             | 1666                      | 27                        | 1                         | 1148                                      |  |
| Cottonwood Road on-ramp to SR 58 east end of the network                      | 3,071              | 3,061           | 100%        | 25                          | 1                          | 63             | 16                     | B                 | 688                             | 1336                      | 21                        | 1                         | 1020                                      | 3,870           | 3,739           | 97%         | 25                          | 1                          | 62             | 20                     | C                 | 705                             | 1631                      | 26                        | 1                         | 1246                                      |  |
| Westside Parkway WB Mainline  |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 58 east end of the network to Cottonwood Road off-ramp                     | 3,475              | 3,475           | 100%        | 26                          | 1                          | 64             | 18                     | C                 | 26                              | 1589                      | 25                        | 0                         | 1165                                      | 5,270           | 5,270           | 100%        | 26                          | 1                          | 63             | 28                     | D                 | 26                              | 2411                      | 38                        | 1                         | 1768                                      |  |
| Cottonwood Road off-ramp to Cottonwood Road on-ramp                           | 3,220              | 3,215           | 100%        | 18                          | 1                          | 63             | 17                     | B                 | 43                              | 988                       | 16                        | 0                         | 1072                                      | 5,035           | 5,035           | 100%        | 18                          | 1                          | 62             | 27                     | D                 | 44                              | 1555                      | 25                        | 1                         | 1688                                      |  |
| Cottonwood Road on-ramp to Brundage Lane off-ramp                             | 3,480              | 3,453           | 99%         | 38                          | 1                          | 62             | 18                     | C                 | 81                              | 2285                      | 37                        | 1                         | 1151                                      | 5,350           | 5,350           | 100%        | 44                          | 7                          | 56             | 33                     | D                 | 88                              | 3657                      | 65                        | 10                        | 1785                                      |  |
| Brundage Lane off-ramp to Brundage Lane on-ramp                               | 2,811              | 2,793           | 99%         | 17                          | 1                          | 63             | 15                     | B                 | 98                              | 824                       | 13                        | 0                         | 931                                       | 4,170           | 4,082           | 98%         | 17                          | 1                          | 61             | 22                     | C                 | 105                             | 1205                      | 20                        | 1                         | 1361                                      |  |
| Brundage Lane on-ramp to Union Avenue on-ramp                                 | 3,195              | 3,121           | 98%         | 12                          | 1                          | 62             | 17                     | B                 | 110                             | 639                       | 10                        | 1                         | 1040                                      | 4,535           | 4,409           | 97%         | 12                          | 1                          | 61             | 24                     | C                 | 117                             | 904                       | 15                        | 1                         | 1470                                      |  |
| Union Avenue on-ramp to Chester Avenue off-ramp                               | 3,761              | 3,717           | 99%         | 23                          | 1                          | 62             | 15                     | B                 | 133                             | 1446                      | 24                        | 1                         | 1062                                      | 5,100           | 4,963           | 97%         | 23                          | 1                          | 61             | 20                     | C                 | 140                             | 1931                      | 32                        | 2                         | 1418                                      |  |
| Chester Avenue off-ramp to H Street on-ramp                                   | 2,785              | 2,785           | 100%        | 37                          | 1                          | 63             | 15                     | B                 | 170                             | 1826                      | 29                        | 1                         | 935                                       | 4,070           | 3,952           | 97%         | 38                          | 2                          | 62             | 21                     | C                 | 178                             | 2573                      | 42                        | 2                         | 1317                                      |  |
| H Street on-ramp to SR 99 NB off-ramp   | 3,480              | 3,468           | 100%        | 24                          | 1                          | 61             | 14                     | B                 | 195                             | 1443                      | 24                        | 1                         | 991                                       | 4,705           | 4,612           | 98%         | 25                          | 1                          | 61             | 19                     | C                 | 203                             | 1920                      | 32                        | 2                         | 1318                                      |  |
| SR 99 NB off-ramp to SR 99 SB off-ramp  | 2,381              | 2,381           | 100%        | 21                          | 1                          | 62             | 13                     | B                 | 216                             | 870                       | 14                        | 0                         | 796                                       | 3,520           | 3,444           | 98%         | 21                          | 1                          | 61             | 19                     | C                 | 224                             | 1253                      | 20                        | 1                         | 1148                                      |  |
| SR 99 SB off-ramp to SR 99 NB on-ramp   | 1,356              | 1,356           | 100%        | 23                          | 1                          | 64             | 11                     | A                 | 239                             | 570                       | 9                         | 0                         | 692                                       | 2,320           | 2,218           | 96%         | 24                          | 1                          | 62             | 18                     | B                 | 248                             | 913                       | 15                        | 1                         | 1109                                      |  |
| SR 99 NB on-ramp to Coffee Road off-ramp                                      | 2,566              | 2,566           | 100%        | 105                         | 3                          | 63             | 14                     | B                 | 344                             | 4741                      | 76                        | 3                         | 867                                       | 3,820           | 3,753           | 98%         | 107                         | 6                          | 61             | 20                     | C                 | 355                             | 6842                      | 111                       | 6                         | 1251                                      |  |
| Coffee Road off-ramp to Mohawk Street/Truxtun Avenue on-ramp                  | 896                | 896             | 100%        | 23                          | 0                          | 64             | 7                      | A                 | 367                             | 374                       | 6                         | 0                         | 460                                       | 1,870           | 1,843           | 99%         | 23                          | 1                          | 63             | 15                     | B                 | 378                             | 748                       | 12                        | 0                         | 921                                       |  |
| Mohawk Street/Truxtun Avenue on-ramp to Coffee Road loop on-ramp              | 2,516              | 2,473           | 98%         | 53                          | 1                          | 64             | 10                     | A                 | 420                             | 2301                      | 36                        | 1                         | 618                                       | 4,030           | 3,966           | 98%         | 53                          | 2                          | 63             | 16                     | B                 | 431                             | 3688                      | 59                        | 2                         | 991                                       |  |
| Coffee Road loop on-ramp to Coffee Road direct on-ramp                        | 2,646              | 2,584           | 98%         | 12                          | 0                          | 64             | 10                     | A                 | 432                             | 563                       | 9                         | 0                         | 646                                       | 4,180           | 4,101           | 98%         | 12                          | 0                          | 63             | 16                     | B                 | 444                             | 893                       | 14                        | 0                         | 1025                                      |  |
| Coffee Road direct on-ramp to Calloway Drive direct off-ramp                  | 2,901              | 2,800           | 97%         | 48                          | 1                          | 63             | 11                     | A                 | 480                             | 2357                      | 37                        | 1                         | 700                                       | 4,480           | 4,348           | 97%         | 48                          | 2                          | 62             | 17                     | B                 | 492                             | 3653                      | 59                        | 2                         | 1087                                      |  |
| Calloway Drive direct off-ramp to Calloway Drive loop off-ramp                | 2,251              | 2,185           | 97%         | 11                          | 0                          | 61             | 9                      | A                 | 491                             | 414                       | 7                         | 0                         | 546                                       | 3,830           | 3,689           | 96%         | 11                          | 0                          | 62             | 15                     | B                 | 503                             | 699                       | 11                        | 0                         | 922                                       |  |
| Calloway Drive loop off-ramp to Calloway Drive on-ramp                        | 1,301              | 1,234           | 95%         | 24                          | 0                          | 64             | 6                      | A                 | 515                             | 528                       | 8                         | 0                         | 411                                       | 2,920           | 2,800           | 96%         | 24                          | 1                          | 63             | 15                     | B                 | 528                             | 1197                      | 19                        | 1                         | 933                                       |  |
| Calloway Drive on-ramp to Allen Road off-ramp                                 | 1,621              | 1,552           | 96%         | 57                          | 2                          | 63             | 8                      | A                 | 572                             | 1545                      | 25                        | 1                         | 517                                       | 3,420           | 3,287           | 96%         | 58                          | 3                          | 62             | 18                     | B                 | 586                             | 3270                      | 53                        | 3                         | 1096                                      |  |
| Allen Road off-ramp to Allen Road on-ramp                                     | 536                | 536             | 100%        | 26                          | 0                          | 65             | 3                      | A                 | 598                             | 262                       | 4                         | 0                         | 187                                       | 2,270           | 2,168           | 96%         | 27                          | 1                          | 64             | 11                     | B                 | 612                             | 1016                      | 16                        | 0                         | 723                                       |  |
| Allen Road on-ramp to West Beltway off-ramp                                   | 656                | 656             | 100%        | 89                          | 1                          | 64             | 5                      | A                 | 687                             | 1091                      | 17                        | 0                         | 230                                       | 2,620           | 2,492           | 95%         | 57                          | 2                          | 62             | 13                     | B                 | 669                             | 2460                      | 39                        | 1                         | 831                                       |  |
| West Beltway off-ramp to West Beltway loop on-ramp                            |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 1,120           | 1,090           | 97%         | 22                          | 0                          | 64             | 9                      | A                 | 692                             | 433                       | 7                         | 0                         | 545                                       |  |
| West Beltway loop on-ramp to West Beltway direct on-ramp                      | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 1,440           | 1,318           | 92%         | 6                           | 0                          | 62             | 11                     | A                 | 698                             | 131                       | 2                         | 0                         | 659                                       |  |
| West Beltway direct on-ramp to Westside Parkway west end of the network       |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 1,745           | 1,600           | 92%         | 6                           | 0                          | 60             | 13                     | B                 | 703                             | 154                       | 3                         | 0                         | 800                                       |  |
| Westside Parkway EB Collector-Distributor 1                                   |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Begin C-D (Coffee Road loop on-ramp to Coffee Road direct on-ramp)            | 830                | 830             | 100%        | 12                          | 1                          | 49             | 22                     | C                 | 12                              | 134                       | 3                         | 0                         | 833                                       | 915             | 915             | 100%        | 12                          | 1                          | 49             | 19                     | C                 | 12                              | 149                       | 3                         | 0                         | 928                                       |  |
| Coffee Road direct on-ramp to end of C-D network (Westside Parkway EB)        | 1,400              | 1,378           | 98%         | 62                          | 2                          | 53             | 21                     | C                 | 73                              | 1248                      | 24                        | 1                         | 689                                       | 1,875           | 1,875           | 100%        | 62                          | 2                          | 53             | 18                     | B                 | 73                              | 1699                      | 32                        | 1                         | 938                                       |  |
| Westside Parkway EB Collector-Distributor 2                                   |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Begin C-D to Mohawk Street off-ramp   | 2,390              | 2,353           | 98%         | 28                          | 1                          | 53             | 20                     | C                 | 28                              | 966                       | 18                        | 1                         | 941                                       | 3,090           | 3,030           | 98%         | 28                          | 1                          | 52             | 23                     | C                 | 28                              | 1243                      | 24                        | 1                         | 1212                                      |  |
| Mohawk Street off-ramp to Mohawk Street on-ramp                               | 1,185              | 1,182           | 100%        | 26                          | 0                          | 54             | 11                     | B                 | 54                              | 462                       | 9                         | 0                         | 591                                       | 1,580           | 1,536           | 97%         | 26                          | 1                          | 54             | 14                     | B                 | 55                              | 600                       | 11                        | 0                         | 768                                       |  |
| Westside Parkway EB Collector-Distributor 3                                   |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Westside Parkway EB C-D on-ramp to SR 99 SB off-ramp                          | 1,130              | 1,106           | 98%         | 6                           | 0                          | 52             | 17                     | B                 | 6                               | 90                        | 2                         | 0                         | 553                                       | 1,880           | 1,851           | 98%         | 6                           | 0                          | 52             | 15                     | B                 | 6                               | 151                       | 3                         | 0                         | 926                                       |  |
| SR 99 SB off-ramp to SR 99 SB C-D on-ramp                                     | 570                | 557             | 98%         | 26                          | 1                          | 47             | 8                      | A                 | 32                              | 188                       | 4                         | 0                         | 557                                       | 555             | 546             | 98%         | 26                          | 1                          | 47             | 7                      | A                 | 32                              | 184                       | 4                         | 0                         | 546                                       |  |
| SR 99 SB C-D on-ramp to Ming Avenue   | 1,440              | 1,373           | 95%         | 28                          | 1                          | 48             | 18                     | C                 | 60                              | 515                       | 11                        | 0                         | 687                                       | 1,490           | 1,468           | 99%         | 28                          | 1                          | 48             | 15                     | B                 | 60                              | 551                       | 11                        | 0                         | 734                                       |  |
| Westside Parkway WB Collector-Distributor                                     |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Truxtun Avenue on-ramp to Mohawk Street loop on-ramp                          | 780                | 749             | 96%         | 14                          | 0                          | 64             | 13                     | B                 | 14                              | 187                       | 3                         | 0                         | 374                                       | 800             | 780             | 98%         | 14                          | 0                          | 64             | 6                      | A                 | 14                              | 195                       | 3                         | 0                         | 390                                       |  |
| Mohawk Street loop on-ramp to Mohawk Street direct on-ramp                    | 1,225              | 1,180           | 96%         | 15                          | 1                          | 60             | 22                     | C                 | 29                              | 292                       | 5                         | 0                         | 590                                       | 1,305           | 1,270           | 97%         | 14                          | 1                          | 62             | 10                     | A                 | 28                              | 314                       | 5                         | 0                         | 635                                       |  |
| Mohawk Street direct on-ramp to Westside Parkway on-ramp (end of C-D network) | 1,620              | 1,555           | 96%         | 17                          | 1                          | 59             | 24                     | C                 | 46                              | 442                       | 7                         | 1                         | 778                                       | 2,160           | 2,127           | 98%         | 17                          | 1                          | 61             | 14                     | B                 | 45                              | 604                       | 10                        | 1                         | 1063                                      |  |

 Bottleneck

 Queue

Table 4-16. PM Peak Hour Measures of Effectiveness for Alternative A—Freeway Mainline Segments (1 of 2)

| FREEWAY SEGMENT   | YEAR 2018       |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | YEAR 2038       |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|--|
|   | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/<br>LANES (vphl) | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/<br>LANES (vphl) |  |
| State Route 99 NB Mainline  |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 99 NB south end of the network to White Lane off-ramp                                    | 4,665           | 4,665           | 100%        | 50                          | 1                          | 63             | 18                     | C                 | 50                              | 4106                      | 65                        | 2                         | 1169                                      | 6,655           | 6,655           | 100%        | 51                          | 2                          | 62             | 27                     | D                 | 51                              | 5839                      | 94                        | 4                         | 1664                                      |  |
| White Lane off-ramp to White Lane loop on-ramp  | 3,975           | 3,975           | 100%        | 19                          | 1                          | 63             | 16                     | B                 | 69                              | 1334                      | 21                        | 1                         | 996                                       | 5,575           | 5,566           | 100%        | 20                          | 1                          | 62             | 23                     | C                 | 70                              | 1864                      | 30                        | 2                         | 1392                                      |  |
| White Lane loop on-ramp to White Lane direct on-ramp  | 5,460           | 5,249           | 96%         | 7                           | 1                          | 56             | 24                     | C                 | 76                              | 552                       | 10                        | 1                         | 1312                                      | 7,230           | 6,686           | 92%         | 7                           | 2                          | 51             | 33                     | D                 | 78                              | 703                       | 14                        | 3                         | 1672                                      |  |
| White Lane direct on-ramp to Ming Avenue off-ramp   | 6,065           | 5,919           | 98%         | 76                          | 4                          | 61             | 22                     | C                 | 152                             | 7657                      | 125                       | 7                         | 1184                                      | 7,915           | 7,395           | 93%         | 84                          | 12                         | 56             | 30                     | D                 | 161                             | 9530                      | 172                       | 24                        | 1479                                      |  |
| Ming Avenue off-ramp to C-D (SR 58 WB) off-ramp   | 5,231           | 5,224           | 100%        | 11                          | 1                          | 61             | 17                     | B                 | 163                             | 998                       | 16                        | 1                         | 1045                                      | 7,065           | 6,781           | 96%         | 13                          | 2                          | 53             | 26                     | C                 | 175                             | 1310                      | 25                        | 4                         | 1356                                      |  |
| SR 58 WB off-ramp to SR 58 EB off-ramp  | 4,401           | 4,332           | 98%         | 27                          | 1                          | 62             | 16                     | B                 | 190                             | 1976                      | 32                        | 1                         | 963                                       | 5,935           | 5,456           | 92%         | 27                          | 2                          | 60             | 21                     | C                 | 202                             | 2484                      | 42                        | 3                         | 1212                                      |  |
| SR 58 EB off-ramp to Ming Avenue on-ramp  | 3,246           | 3,246           | 100%        | 25                          | 1                          | 63             | 13                     | B                 | 215                             | 1415                      | 22                        | 1                         | 815                                       | 4,270           | 4,065           | 95%         | 25                          | 1                          | 63             | 16                     | B                 | 227                             | 1765                      | 28                        | 1                         | 1016                                      |  |
| Ming Avenue on-ramp to SR 58 on-ramp  | 3,951           | 3,915           | 99%         | 7                           | 0                          | 62             | 16                     | B                 | 222                             | 501                       | 8                         | 0                         | 979                                       | 5,120           | 4,836           | 94%         | 8                           | 0                          | 61             | 20                     | C                 | 234                             | 619                       | 10                        | 1                         | 1209                                      |  |
| SR 58 on-ramp to California Avenue off-ramp   | 4,891           | 4,891           | 100%        | 38                          | 2                          | 61             | 19                     | C                 | 260                             | 3191                      | 52                        | 3                         | 1234                                      | 6,240           | 6,016           | 96%         | 39                          | 3                          | 60             | 24                     | C                 | 273                             | 3897                      | 65                        | 5                         | 1504                                      |  |
| California Avenue off-ramp to California Avenue loop on-ramp                                | 4,261           | 4,261           | 100%        | 16                          | 1                          | 63             | 17                     | B                 | 276                             | 1215                      | 19                        | 1                         | 1076                                      | 5,530           | 5,308           | 96%         | 16                          | 1                          | 62             | 21                     | C                 | 290                             | 1499                      | 24                        | 1                         | 1327                                      |  |
| California Avenue loop on-ramp to California Avenue direct on-ramp                          | 5,166           | 4,956           | 96%         | 9                           | 1                          | 60             | 21                     | C                 | 285                             | 737                       | 12                        | 1                         | 1239                                      | 6,905           | 6,108           | 88%         | 9                           | 1                          | 57             | 27                     | D                 | 299                             | 911                       | 16                        | 2                         | 1527                                      |  |
| California Avenue direct on-ramp to Rosedale Highway off-ramp                               | 5,826           | 5,384           | 92%         | 32                          | 2                          | 60             | 21                     | C                 | 317                             | 2833                      | 48                        | 3                         | 1196                                      | 7,805           | 6,598           | 85%         | 36                          | 6                          | 53             | 30                     | D                 | 335                             | 3459                      | 66                        | 11                        | 1466                                      |  |
| Rosedale Highway off-ramp to Buck Owens Boulevard/Sillect Avenue off-ramp                   | 4,066           | 3,787           | 93%         | 16                          | 0                          | 63             | 15                     | B                 | 333                             | 1076                      | 17                        | 0                         | 947                                       | 6,005           | 5,209           | 87%         | 16                          | 1                          | 62             | 21                     | C                 | 352                             | 1480                      | 24                        | 1                         | 1302                                      |  |
| Buck Owens Boulevard/Sillect Avenue off-ramp to Buck Owens Boulevard/Sillect Avenue on-ramp | 3,701           | 3,410           | 92%         | 24                          | 1                          | 63             | 13                     | B                 | 357                             | 1417                      | 22                        | 1                         | 853                                       | 5,605           | 4,859           | 87%         | 24                          | 1                          | 63             | 19                     | C                 | 375                             | 2019                      | 32                        | 1                         | 1215                                      |  |
| Buck Owens Boulevard/Sillect Avenue on-ramp to Airport Drive off-ramp                       | 4,416           | 4,124           | 93%         | 34                          | 2                          | 61             | 17                     | B                 | 391                             | 2343                      | 39                        | 2                         | 1031                                      | 6,395           | 5,618           | 88%         | 34                          | 3                          | 60             | 24                     | C                 | 410                             | 3193                      | 53                        | 4                         | 1404                                      |  |
| Airport Dr off-ramp to SR 99 NB north end of the network                                    | 3,051           | 2,839           | 93%         | 40                          | 1                          | 63             | 11                     | B                 | 431                             | 2004                      | 32                        | 1                         | 710                                       | 5,030           | 4,446           | 88%         | 41                          | 2                          | 62             | 18                     | B                 | 450                             | 3140                      | 50                        | 2                         | 1112                                      |  |
| State Route 99 SB Mainline  |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 99 SB north end of the network to Airport Drive on-ramp                                  | 3,550           | 3,550           | 100%        | 48                          | 1                          | 64             | 14                     | B                 | 48                              | 3042                      | 48                        | 1                         | 892                                       | 4,735           | 4,735           | 100%        | 48                          | 1                          | 63             | 19                     | C                 | 48                              | 4062                      | 64                        | 2                         | 1189                                      |  |
| Airport Drive on-ramp to Rosedale Highway off-ramp  | 5,314           | 5,280           | 99%         | 32                          | 3                          | 60             | 21                     | C                 | 80                              | 2824                      | 47                        | 4                         | 1173                                      | 6,805           | 6,805           | 100%        | 35                          | 6                          | 55             | 30                     | D                 | 84                              | 3763                      | 68                        | 11                        | 1534                                      |  |
| Rosedale Highway off-ramp to Rosedale Highway loop on-ramp                                  | 4,604           | 4,585           | 100%        | 25                          | 1                          | 62             | 18                     | C                 | 105                             | 1972                      | 32                        | 1                         | 1146                                      | 5,495           | 5,495           | 100%        | 26                          | 2                          | 60             | 24                     | C                 | 110                             | 2438                      | 41                        | 3                         | 1416                                      |  |
| Rosedale Highway loop on-ramp to Rosedale Highway direct on-ramp                            | 5,938           | 5,924           | 100%        | 11                          | 2                          | 50             | 26                     | C                 | 116                             | 897                       | 18                        | 4                         | 1481                                      | 6,870           | 6,870           | 100%        | 13                          | 5                          | 42             | 36                     | E                 | 123                             | 1059                      | 25                        | 9                         | 1733                                      |  |
| Rosedale Highway direct on-ramp to California Avenue off-ramp                               | 7,044           | 7,012           | 100%        | 40                          | 6                          | 55             | 31                     | D                 | 155                             | 4272                      | 77                        | 11                        | 1753                                      | 8,210           | 8,151           | 99%         | 54                          | 20                         | 40             | 51                     | F                 | 177                             | 4868                      | 122                       | 45                        | 2038                                      |  |
| California Avenue off-ramp to California Avenue on-ramp                                     | 5,649           | 5,640           | 100%        | 14                          | 1                          | 62             | 23                     | C                 | 169                             | 1312                      | 21                        | 1                         | 1410                                      | 6,555           | 6,442           | 98%         | 14                          | 1                          | 60             | 27                     | D                 | 191                             | 1500                      | 25                        | 2                         | 1611                                      |  |
| California Avenue on-ramp to SR 58 EB off-ramp  | 6,570           | 6,462           | 98%         | 29                          | 3                          | 57             | 27                     | D                 | 198                             | 2989                      | 52                        | 6                         | 1615                                      | 7,495           | 7,202           | 96%         | 29                          | 3                          | 58             | 30                     | D                 | 220                             | 3329                      | 58                        | 6                         | 1800                                      |  |
| SR 58 EB off-ramp to Ming Avenue off-ramp   | 5,195           | 5,102           | 98%         | 28                          | 1                          | 62             | 21                     | C                 | 226                             | 2475                      | 40                        | 2                         | 1276                                      | 6,055           | 5,814           | 96%         | 28                          | 2                          | 61             | 24                     | C                 | 248                             | 2820                      | 46                        | 2                         | 1454                                      |  |
| Ming Avenue off-ramp to SR 58 WB on-ramp  | 4,075           | 4,009           | 98%         | 22                          | 1                          | 63             | 16                     | B                 | 248                             | 1527                      | 24                        | 1                         | 1002                                      | 4,850           | 4,617           | 95%         | 22                          | 1                          | 62             | 18                     | C                 | 270                             | 1758                      | 28                        | 1                         | 1154                                      |  |
| SR 58 WB on-ramp to Ming Avenue on-ramp   | 6,130           | 6,037           | 98%         | 52                          | 2                          | 62             | 18                     | C                 | 300                             | 5392                      | 87                        | 4                         | 1341                                      | 7,590           | 7,109           | 94%         | 67                          | 17                         | 49             | 28                     | D                 | 337                             | 6495                      | 131                       | 33                        | 1580                                      |  |
| Ming Avenue on-ramp to White Lane off-ramp  | 6,780           | 6,685           | 99%         | 63                          | 6                          | 59             | 27                     | D                 | 363                             | 6898                      | 117                       | 11                        | 1671                                      | 8,435           | 7,514           | 89%         | 115                         | 57                         | 34             | 56                     | F                 | 452                             | 8095                      | 240                       | 120                       | 1878                                      |  |
| White Lane off-ramp to White Lane loop on-ramp  | 4,765           | 4,678           | 98%         | 19                          | 1                          | 63             | 19                     | C                 | 382                             | 1568                      | 25                        | 1                         | 1040                                      | 6,365           | 5,629           | 88%         | 20                          | 1                          | 61             | 23                     | C                 | 471                             | 1887                      | 31                        | 2                         | 1251                                      |  |
| White Lane loop on-ramp to White Lane direct on-ramp  | 5,275           | 5,140           | 97%         | 10                          | 0                          | 62             | 21                     | C                 | 392                             | 870                       | 14                        | 1                         | 1285                                      | 6,915           | 6,129           | 89%         | 10                          | 1                          | 61             | 25                     | C                 | 481                             | 1038                      | 17                        | 1                         | 1532                                      |  |
| White Lane direct on-ramp to SR 99 SB south end of the network                              | 5,755           | 5,449           | 95%         | 52                          | 2                          | 62             | 22                     | C                 | 444                             | 4926                      | 79                        | 3                         | 1362                                      | 7,560           | 6,506           | 86%         | 53                          | 3                          | 61             | 27                     | D                 | 534                             | 5879                      | 96                        | 5                         | 1627                                      |  |
| State Route 99 NB Collector-Distributor   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 99 NB C-D on-ramp to Westside Parkway C-D off-ramp                                       | 1,925           | 1,925           | 100%        | 18                          | 0                          | 53             | 12                     | B                 | 26                              | 517                       | 10                        | 0                         | 779                                       | 2,480           | 2,480           | 100%        | 18                          | 1                          | 53             | 16                     | B                 | 26                              | 677                       | 13                        | 0                         | 1021                                      |  |
| State Route 99 SB Collector-Distributor   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Westside Parkway C-D on-ramp to SR 99 SB C-D on-ramp  | 1,925           | 1,925           | 100%        | 7                           | 0                          | 47             | 15                     | B                 | 15                              | 191                       | 4                         | 0                         | 1023                                      | 2,740           | 2,662           | 97%         | 8                           | 1                          | 42             | 21                     | C                 | 16                              | 251                       | 6                         | 1                         | 1331                                      |  |

Bottleneck

Queue

Table 4-16. PM Peak Hour Measures of Effectiveness for Alternative A—Freeway Mainline Segments (2 of 2)

| FREEWAY SEGMENT   | YEAR 2018          |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | YEAR 2038       |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
|---|--------------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|-----------------|-----------------|-------------|-----------------------------|----------------------------|----------------|------------------------|-------------------|---------------------------------|---------------------------|---------------------------|---------------------------|---|--|
|   | DEMAND<br>(vph)    | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/<br>LANES (vphl) | DEMAND<br>(vph) | SERVED<br>(vph) | %<br>SERVED | TRAVEL<br>TIME<br>(sec/veh) | DELAY<br>TIME<br>(sec/veh) | SPEED<br>(mph) | DENSITY<br>(veh/ln/mi) | LOS<br>(HCM 2000) | CUMULATIVE<br>TIME<br>(sec/veh) | VEHICLE<br>MILES<br>(VMT) | VEHICLE<br>HOURS<br>(VHT) | VEHICLE<br>DELAY<br>(VHD) | CORSIM SERVED<br>VOLUMES/<br>LANES (vphl) |  |
| Westside Parkway EB Mainline  |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Westside Parkway west end of the network to West Beltway off-ramp       | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 2,220           | 2,217           | 100%        | 7                           | 2                          | 44             | 25                     | C                 | 7                               | 181                       | 4                         | 1                         | 1109                                      |  |
| West Beltway off-ramp to West Beltway loop on-ramp                      | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 1,350           | 1,267           | 94%         | 14                          | 1                          | 60             | 11                     | A                 | 21                              | 297                       | 5                         | 0                         | 634                                       |  |
| West Beltway loop on-ramp to West Beltway direct on-ramp                | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 2,690           | 2,586           | 96%         | 9                           | 1                          | 61             | 14                     | B                 | 30                              | 404                       | 7                         | 0                         | 862                                       |  |
| West Beltway direct on-ramp to Allen Road off-ramp                      | 895                | 872             | 97%         | 83                          | 3                          | 61             | 7                      | A                 | 83                              | 1232                      | 20                        | 1                         | 436                                       | 2,965           | 2,835           | 96%         | 57                          | 2                          | 63             | 15                     | B                 | 87                              | 2788                      | 44                        | 1                         | 945                                       |  |
| Allen Road off-ramp to Allen Road on-ramp                               | 810                | 810             | 100%        | 32                          | 0                          | 64             | 4                      | A                 | 115                             | 464                       | 7                         | 0                         | 272                                       | 2,655           | 2,543           | 96%         | 32                          | 1                          | 63             | 13                     | B                 | 119                             | 1448                      | 23                        | 1                         | 848                                       |  |
| Allen Road on-ramp to Calloway Drive off-ramp                           | 2,091              | 1,982           | 95%         | 58                          | 2                          | 63             | 10                     | A                 | 173                             | 2007                      | 32                        | 1                         | 661                                       | 4,530           | 4,351           | 96%         | 60                          | 4                          | 61             | 24                     | C                 | 179                             | 4423                      | 73                        | 5                         | 1450                                      |  |
| Calloway Drive off-ramp to Calloway Drive loop on-ramp                  | 1,615              | 1,516           | 94%         | 24                          | 0                          | 64             | 8                      | A                 | 197                             | 656                       | 10                        | 0                         | 505                                       | 3,730           | 3,606           | 97%         | 25                          | 1                          | 63             | 19                     | C                 | 204                             | 1563                      | 25                        | 1                         | 1202                                      |  |
| Calloway Drive loop on-ramp to Calloway Drive direct on-ramp            | 2,331              | 2,161           | 93%         | 11                          | 1                          | 61             | 12                     | B                 | 208                             | 409                       | 7                         | 0                         | 720                                       | 4,770           | 4,558           | 96%         | 12                          | 1                          | 58             | 26                     | D                 | 216                             | 863                       | 15                        | 1                         | 1519                                      |  |
| Calloway Drive direct on-ramp to Coffee Road off-ramp                   | 3,305              | 3,163           | 96%         | 48                          | 2                          | 62             | 16                     | B                 | 256                             | 2631                      | 42                        | 2                         | 1054                                      | 5,880           | 5,703           | 97%         | 50                          | 4                          | 60             | 31                     | D                 | 266                             | 4776                      | 79                        | 6                         | 1901                                      |  |
| Coffee Road off-ramp to Truxtun Avenue/Mohawk Street off-ramp           | 2,710              | 2,604           | 96%         | 57                          | 1                          | 63             | 11                     | A                 | 313                             | 2599                      | 41                        | 1                         | 744                                       | 5,055           | 4,869           | 96%         | 58                          | 3                          | 62             | 21                     | C                 | 324                             | 4857                      | 79                        | 3                         | 1391                                      |  |
| Truxtun Avenue off-ramp to Coffee Road on-ramps                         | 950                | 889             | 94%         | 31                          | 0                          | 64             | 7                      | A                 | 345                             | 496                       | 8                         | 0                         | 444                                       | 2,355           | 2,296           | 97%         | 32                          | 1                          | 63             | 18                     | C                 | 356                             | 1280                      | 20                        | 1                         | 1148                                      |  |
| Coffee Road on-ramps to SR 99 SB and Ming Avenue C-D off-ramp           | 2,600              | 2,543           | 98%         | 109                         | 4                          | 62             | 13                     | B                 | 453                             | 4793                      | 77                        | 3                         | 848                                       | 4,525           | 4,438           | 98%         | 111                         | 7                          | 61             | 24                     | C                 | 467                             | 8361                      | 137                       | 8                         | 1479                                      |  |
| SR 99 SB off-ramp (and C-D Ming Avenue) to H Street off-ramp            | 1,180              | 1,180           | 100%        | 23                          | 0                          | 63             | 9                      | A                 | 476                             | 470                       | 7                         | 0                         | 590                                       | 2,355           | 2,309           | 98%         | 23                          | 1                          | 62             | 19                     | C                 | 490                             | 917                       | 15                        | 1                         | 1154                                      |  |
| H Street off-ramp to SR 99 NB and SB on-ramp                            | 890                | 865             | 97%         | 30                          | 0                          | 64             | 7                      | A                 | 506                             | 459                       | 7                         | 0                         | 432                                       | 2,047           | 1,986           | 97%         | 30                          | 1                          | 63             | 16                     | B                 | 521                             | 1053                      | 17                        | 1                         | 993                                       |  |
| SR 99 NB and SB on-ramp to Chester Avenue on-ramp                       | 3,010              | 2,906           | 97%         | 47                          | 4                          | 60             | 10                     | A                 | 553                             | 2270                      | 38                        | 3                         | 830                                       | 4,745           | 4,275           | 90%         | 49                          | 6                          | 58             | 16                     | B                 | 570                             | 3357                      | 58                        | 7                         | 1221                                      |  |
| Chester Avenue on-ramp to Union Avenue off-ramp                         | 3,999              | 3,836           | 96%         | 27                          | 1                          | 61             | 16                     | B                 | 580                             | 1762                      | 29                        | 1                         | 1096                                      | 5,935           | 5,410           | 91%         | 28                          | 2                          | 60             | 23                     | C                 | 598                             | 2487                      | 42                        | 3                         | 1546                                      |  |
| Union Avenue off-ramp to Union Avenue loop on-ramp                      | 3,219              | 3,079           | 96%         | 17                          | 1                          | 63             | 16                     | B                 | 597                             | 894                       | 14                        | 0                         | 1026                                      | 4,910           | 4,517           | 92%         | 17                          | 1                          | 62             | 24                     | C                 | 614                             | 1312                      | 21                        | 1                         | 1506                                      |  |
| Union Avenue loop on-ramp to Union Avenue direct on-ramp                | 3,780              | 3,569           | 94%         | 8                           | 0                          | 61             | 19                     | C                 | 605                             | 499                       | 8                         | 0                         | 1190                                      | 5,575           | 5,086           | 91%         | 9                           | 1                          | 59             | 29                     | D                 | 623                             | 712                       | 12                        | 1                         | 1695                                      |  |
| Union Avenue direct on-ramp to Cottonwood Road off-ramp                 | 4,195              | 4,016           | 96%         | 31                          | 1                          | 62             | 22                     | C                 | 636                             | 2134                      | 35                        | 2                         | 1339                                      | 6,150           | 5,727           | 93%         | 32                          | 3                          | 59             | 32                     | D                 | 655                             | 3047                      | 51                        | 4                         | 1909                                      |  |
| Cottonwood Road off-ramp to Cottonwood Road on-ramp                     | 3,755              | 3,598           | 96%         | 28                          | 1                          | 63             | 19                     | C                 | 664                             | 1740                      | 28                        | 1                         | 1199                                      | 5,245           | 4,893           | 93%         | 28                          | 1                          | 62             | 26                     | D                 | 683                             | 2366                      | 38                        | 2                         | 1631                                      |  |
| Cottonwood Road on-ramp to SR 58 east end of the network                | 4,145              | 3,981           | 96%         | 25                          | 1                          | 62             | 21                     | C                 | 689                             | 1737                      | 28                        | 1                         | 1327                                      | 5,545           | 5,172           | 93%         | 26                          | 1                          | 61             | 28                     | D                 | 709                             | 2256                      | 37                        | 2                         | 1724                                      |  |
| Westside Parkway WB Mainline  |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| SR 58 east end of the network to Cottonwood Road off-ramp               | 3,790              | 3,790           | 100%        | 26                          | 1                          | 64             | 20                     | C                 | 26                              | 1736                      | 27                        | 1                         | 1272                                      | 5,030           | 5,030           | 100%        | 26                          | 1                          | 63             | 27                     | D                 | 26                              | 2302                      | 37                        | 1                         | 1688                                      |  |
| Cottonwood Road off-ramp to Cottonwood Road on-ramp                     | 3,531              | 3,528           | 100%        | 18                          | 1                          | 63             | 19                     | C                 | 43                              | 1084                      | 17                        | 1                         | 1176                                      | 4,725           | 4,717           | 100%        | 18                          | 1                          | 62             | 25                     | C                 | 44                              | 1449                      | 23                        | 1                         | 1572                                      |  |
| Cottonwood Road on-ramp to Brundage Lane off-ramp                       | 3,941              | 3,932           | 100%        | 39                          | 2                          | 62             | 21                     | C                 | 82                              | 2600                      | 42                        | 2                         | 1311                                      | 5,255           | 5,219           | 99%         | 39                          | 3                          | 60             | 29                     | D                 | 83                              | 3451                      | 57                        | 4                         | 1740                                      |  |
| Brundage Lane off-ramp to Brundage Lane on-ramp                         | 3,041              | 3,040           | 100%        | 17                          | 1                          | 63             | 16                     | B                 | 99                              | 897                       | 14                        | 0                         | 1013                                      | 4,265           | 4,222           | 99%         | 17                          | 1                          | 62             | 23                     | C                 | 101                             | 1246                      | 20                        | 1                         | 1407                                      |  |
| Brundage Lane on-ramp to Union Avenue on-ramp                           | 3,386              | 3,354           | 99%         | 12                          | 1                          | 62             | 18                     | C                 | 111                             | 688                       | 11                        | 1                         | 1118                                      | 4,625           | 4,545           | 98%         | 12                          | 1                          | 60             | 25                     | C                 | 113                             | 931                       | 15                        | 1                         | 1515                                      |  |
| Union Avenue on-ramp to Chester Avenue off-ramp                         | 4,116              | 4,116           | 100%        | 23                          | 1                          | 61             | 17                     | B                 | 134                             | 1603                      | 26                        | 1                         | 1177                                      | 5,395           | 5,323           | 99%         | 23                          | 1                          | 60             | 22                     | C                 | 136                             | 2071                      | 34                        | 2                         | 1521                                      |  |
| Chester Avenue off-ramp to H Street on-ramp                             | 3,216              | 3,216           | 100%        | 37                          | 1                          | 63             | 17                     | B                 | 171                             | 2112                      | 34                        | 1                         | 1081                                      | 4,280           | 4,249           | 99%         | 38                          | 2                          | 62             | 23                     | C                 | 174                             | 2767                      | 45                        | 2                         | 1416                                      |  |
| H Street on-ramp to SR 99 NB off-ramp                                   | 4,092              | 4,070           | 99%         | 25                          | 1                          | 61             | 17                     | B                 | 196                             | 1695                      | 28                        | 1                         | 1163                                      | 4,940           | 4,901           | 99%         | 25                          | 2                          | 60             | 20                     | C                 | 199                             | 2041                      | 34                        | 2                         | 1400                                      |  |
| SR 99 NB off-ramp to SR 99 SB off-ramp                                  | 3,151              | 3,120           | 99%         | 21                          | 1                          | 62             | 17                     | B                 | 217                             | 1137                      | 18                        | 1                         | 1040                                      | 3,820           | 3,795           | 99%         | 21                          | 1                          | 61             | 21                     | C                 | 220                             | 1379                      | 23                        | 1                         | 1265                                      |  |
| SR 99 SB off-ramp to SR 99 NB on-ramp                                   | 1,902              | 1,854           | 97%         | 23                          | 1                          | 63             | 15                     | B                 | 241                             | 763                       | 12                        | 0                         | 927                                       | 2,595           | 2,581           | 99%         | 24                          | 1                          | 62             | 21                     | C                 | 244                             | 1063                      | 17                        | 1                         | 1291                                      |  |
| SR 99 NB on-ramp to Coffee Road off-ramp                                | 3,122              | 3,068           | 98%         | 106                         | 4                          | 62             | 16                     | B                 | 346                             | 5591                      | 90                        | 4                         | 1023                                      | 4,225           | 4,290           | 102%        | 108                         | 7                          | 61             | 23                     | C                 | 352                             | 7819                      | 128                       | 8                         | 1430                                      |  |
| Coffee Road off-ramp to Mohawk Street/Truxtun Avenue on-ramp            | 1,267              | 1,254           | 99%         | 23                          | 1                          | 63             | 10                     | A                 | 369                             | 509                       | 8                         | 0                         | 627                                       | 2,650           | 2,650           | 100%        | 24                          | 1                          | 62             | 22                     | C                 | 375                             | 1091                      | 18                        | 1                         | 1343                                      |  |
| Mohawk Street/Truxtun Avenue on-ramp to Coffee Road loop on-ramp        | 3,866              | 3,707           | 96%         | 53                          | 1                          | 63             | 15                     | B                 | 422                             | 3448                      | 55                        | 1                         | 927                                       | 6,430           | 6,355           | 99%         | 54                          | 2                          | 62             | 26                     | C                 | 429                             | 5911                      | 95                        | 4                         | 1589                                      |  |
| Coffee Road loop on-ramp to Coffee Road direct on-ramp                  | 4,136              | 3,924           | 95%         | 13                          | 0                          | 63             | 16                     | B                 | 435                             | 855                       | 14                        | 0                         | 981                                       | 6,670           | 6,556           | 98%         | 13                          | 1                          | 61             | 27                     | D                 | 442                             | 1428                      | 23                        | 1                         | 1639                                      |  |
| Coffee Road direct on-ramp to Calloway Drive direct off-ramp            | 4,551              | 4,328           | 95%         | 49                          | 2                          | 62             | 17                     | B                 | 484                             | 3644                      | 59                        | 3                         | 1082                                      | 7,220           | 7,073           | 98%         | 50                          | 4                          | 60             | 29                     | D                 | 493                             | 5967                      | 99                        | 7                         | 1768                                      |  |
| Calloway Drive direct off-ramp to Calloway Drive loop off-ramp          | 3,666              | 3,484           | 95%         | 11                          | 0                          | 62             | 14                     | B                 | 495                             | 660                       | 11                        | 0                         | 871                                       | 6,225           | 6,091           | 98%         | 11                          | 1                          | 61             | 25                     | C                 | 504                             | 1154                      | 19                        | 1                         | 1523                                      |  |
| Calloway Drive loop off-ramp to Calloway Drive on-ramp                  | 2,431              | 2,285           | 94%         | 24                          | 0                          | 63             | 12                     | B                 | 519                             | 977                       | 15                        | 0                         | 762                                       | 4,875           | 4,764           | 98%         | 25                          | 1                          | 62             | 26                     | C                 | 529                             | 2037                      | 33                        | 2                         | 1588                                      |  |
| Calloway Drive on-ramp to Allen Road off-ramp                           | 2,916              | 2,800           | 96%         | 58                          | 3                          | 62             | 14                     | B                 | 577                             | 2792                      | 45                        | 2                         | 933                                       | 5,755           | 5,589           | 97%         | 63                          | 8                          | 58             | 32                     | D                 | 591                             | 5615                      | 97                        | 12                        | 1863                                      |  |
| Allen Road off-ramp to Allen Road on-ramp                               | 1,101              | 1,055           | 96%         | 26                          | 0                          | 64             | 5                      | A                 | 604                             | 494                       | 8                         | 0                         | 352                                       | 3,525           | 3,454           | 98%         | 27                          | 1                          | 63             | 18                     | C                 | 618                             | 1618                      | 26                        | 1                         | 1151                                      |  |
| Allen Road on-ramp to West Beltway off-ramp                             | 1,166              | 1,117           | 96%         | 89                          | 1                          | 64             | 8                      | A                 | 693                             | 1758                      | 28                        | 0                         | 372                                       | 3,895           | 3,792           | 97%         | 58                          | 3                          | 61             | 21                     | C                 | 676                             | 3747                      | 61                        | 3                         | 1264                                      |  |
| West Beltway off-ramp to West Beltway loop on-ramp                      | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 1,510           | 1,468           | 97%         | 23                          | 0                          | 63             | 12                     | B                 | 699                             | 583                       | 9                         | 0                         | 734                                       |  |
| West Beltway loop on-ramp to West Beltway direct on-ramp                | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 1,935           | 1,842           | 95%         | 6                           | 0                          | 61             | 15                     | B                 | 705                             | 184                       | 3                         | 0                         | 921                                       |  |
| West Beltway direct on-ramp to Westside Parkway west end of the network | — NOT APPLICABLE — |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   | 2,280           | 2,184           | 96%         | 6                           | 1                          | 59             | 19                     | C                 | 711                             | 210                       | 4                         | 0                         | 1092                                      |  |
| Westside Parkway EB Collector-Distributor 1                             |                    |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |
| Begin C-D (Coffee Road loop on-ramp to Coffee Road direct on-ramp)      | 905                | 899             | 99%         | 12                          | 1                          | 49             | 22                     | C                 | 12                              | 144                       | 3                         | 0                         | 899                                       | 1,100           | 1,100           | 100%        | 12                          | 1                          | 49             | 23                     | C                 | 12                              | 178                       | 4                         | 0                         | 1106                                      |  |
| Coffee Road direct on-ramp to end of C-D network (Westside Parkway EB)  | 1,650              | 1,650           | 100%        | 62                          | 2                          | 53             | 21                     | C                 |                                 |                           |                           |                           |   |                 |                 |             |                             |                            |                |                        |                   |                                 |                           |                           |                           |   |  |

**Table 4-17. AM Peak Hour Measures of Effectiveness for Alternative A—  
Merging/Diverging Conditions**

| LOCATION  | ANALYSIS TYPE | YEAR 2018          |                     |                | YEAR 2038   |                     |                |
|---|---------------|--------------------|---------------------|----------------|-------------|---------------------|----------------|
|   |               | SPEED (mph)        | DENSITY (veh/ln/mi) | LOS (HCM 2000) | SPEED (mph) | DENSITY (veh/ln/mi) | LOS (HCM 2000) |
| State Route 99 NB   |               |                    |                     |                |             |                     |                |
| White Lane loop on-ramp   | Merging       | 48                 | 35.9                | E              | 39          | 49.8                | E              |
| White Lane diagonal on-ramp   | Merging       | 56                 | 36.5                | E              | 51          | 45.0                | E              |
| Ming Avenue (from C-D) on-ramp  | Merging       | 58                 | 23.0                | C              | 57          | 26.9                | C              |
| SR 58 on-ramp   | Merging       | 56                 | 28.2                | D              | 53          | 33.7                | D              |
| California Avenue loop on-ramp  | Merging       | 58                 | 29.6                | D              | 56          | 35.4                | E              |
| California Avenue diagonal on-ramp  | Merging       | 58                 | 29.3                | D              | 54          | 35.4                | E              |
| Buck Owens Boulevard/Sillect Avenue on-ramp                                 | Merging       | 61                 | 17.5                | B              | 59          | 22.7                | C              |
| White Lane off-ramp   | Diverging     | 62                 | 21.8                | C              | 59          | 32.1                | D              |
| Ming Avenue off-ramp  | Diverging     | 60                 | 19.1                | B              | 57          | 23.1                | C              |
| Westside Parkway (C-D) off-ramp   | Diverging     | 61                 | 21.1                | C              | 59          | 25.2                | C              |
| SR 58 EB off-ramp   | Diverging     | 61                 | 16.9                | B              | 61          | 19.0                | B              |
| California Avenue off-ramp  | Diverging     | 58                 | 34.9                | D              | 56          | 40.4                | E              |
| Rosedale Highway off-ramp   | Diverging     | 58                 | 24.1                | C              | 55          | 28.9                | D              |
| Buck Owens Boulevard/Sillect Avenue off-ramp                                | Diverging     | 61                 | 19.2                | B              | 60          | 23.4                | C              |
| Airport Drive off-ramp  | Diverging     | 57                 | 23.7                | C              | 55          | 30.3                | D              |
| State Route 99 SB   |               |                    |                     |                |             |                     |                |
| Airport Drive on-ramp   | Merging       | 61                 | 22.4                | C              | 59          | 28.2                | D              |
| Rosedale Highway loop on-ramp   | Merging       | 54                 | 21.9                | C              | 52          | 24.8                | C              |
| Rosedale Highway diagonal on-ramp   | Merging       | 57                 | 31.6                | D              | 55          | 36.4                | E              |
| California Avenue on-ramp   | Merging       | 59                 | 25.4                | C              | 58          | 27.0                | C              |
| SR 99 SB C-D on-ramp (Westside Parkway EB and SR 58 WB and H Street)        | Merging       | 62                 | 12.8                | B              | 61          | 17.5                | B              |
| Ming Avenue on-ramp   | Merging       | 59                 | 26.6                | C              | 56          | 37.5                | E              |
| White Lane loop on-ramp   | Merging       | 61                 | 17.0                | B              | 60          | 21.7                | C              |
| White Lane diagonal on-ramp   | Merging       | 61                 | 18.2                | B              | 60          | 23.2                | C              |
| Rosedale Highway off-ramp   | Diverging     | 61                 | 21.4                | C              | 59          | 28.0                | C              |
| California Avenue off-ramp  | Diverging     | 57                 | 35.0                | D              | 54          | 40.8                | E              |
| SR 58 EB off-ramp   | Diverging     | 60                 | 27.5                | C              | 59          | 29.1                | D              |
| SR 99 SB C-D off-ramp (Ming Avenue)   | Diverging     | 61                 | 20.4                | C              | 60          | 22.7                | C              |
| White Lane off-ramp   | Diverging     | 60                 | 21.0                | C              | 55          | 29.4                | D              |
| Westside Parkway/State Route 58 EB  |               |                    |                     |                |             |                     |                |
| West Beltway loop on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 61          | 15.3                | B              |
| West Beltway diagonal on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 62          | 18.4                | B              |
| Allen Road on-ramp  | Merging       | 60                 | 18.5                | B              | 55          | 32.6                | D              |
| Calloway Drive loop on-ramp   | Merging       | 60                 | 18.9                | B              | 58          | 29.3                | D              |
| Calloway Drive diagonal on-ramp   | Merging       | 57                 | 22.9                | C              | 51          | 34.3                | D              |
| SR 99 NB and SB on-ramp   | Merging       | 63                 | 8.1                 | A              | 62          | 10.5                | B              |
| Union Avenue loop on-ramp   | Merging       | 61                 | 17.4                | B              | 61          | 22.1                | C              |
| Union Avenue diagonal on-ramp   | Merging       | 61                 | 20.4                | C              | 60          | 25.3                | C              |
| Cottonwood Road on-ramp   | Merging       | 61                 | 17.8                | B              | 61          | 21.0                | C              |
| West Beltway off-ramp   | Diverging     | — NOT APPLICABLE — |                     |                | 47          | 24.4                | C              |
| Allen Road off-ramp   | Diverging     | 65                 | 5.1                 | A              | 62          | 19.1                | B              |
| Calloway diagonal off-ramp  | Diverging     | 62                 | 18.6                | B              | 60          | 30.4                | D              |
| Coffee Road off-ramp  | Diverging     | 61                 | 25.3                | C              | 60          | 35.7                | E              |
| Westside Parkway EB C-D off-ramp (Mohawk Street and Truxtun Avenue)         | Diverging     | 61                 | 16.4                | B              | 60          | 22.6                | C              |
| H Street off-ramp   | Diverging     | 63                 | 8.9                 | A              | 63          | 14.6                | B              |
| Cottonwood Road off-ramp  | Diverging     | 61                 | 20.1                | C              | 61          | 25.0                | C              |
| Coffee Road C-D on-ramp to SR 99 SB C-D off-ramp (SR 99 SB and Ming Avenue) | Weaving       | 63                 | 11.8                | B              | 61          | 19.8                | B              |
| Chester Avenue on-ramp to Union Avenue off-ramp                             | Weaving       | 61                 | 15.0                | B              | 60          | 19.8                | B              |
| Westside Parkway/State Route 58 WB  |               |                    |                     |                |             |                     |                |
| Brundage Lane on-ramp (Cottonwood Road)                                     | Merging       | 63                 | 18.1                | B              | 60          | 30.6                | D              |
| Brundage Lane on-ramp (Union Avenue)  | Merging       | 62                 | 17.9                | B              | 60          | 24.7                | C              |
| Truxtun Avenue/Mohawk Street (C-D) on-ramp                                  | Merging       | 63                 | 10.8                | B              | 63          | 16.4                | B              |
| Coffee Road loop on-ramp  | Merging       | 63                 | 12.2                | B              | 62          | 18.0                | B              |
| Calloway Drive on-ramp  | Merging       | 62                 | 10.4                | B              | 61          | 20.5                | C              |
| Allen Road on-ramp  | Merging       | 63                 | 4.5                 | A              | 62          | 14.3                | B              |
| West Beltway loop on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 62          | 10.6                | B              |
| West Beltway diagonal on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 60          | 13.3                | B              |
| Brundage Lane off-ramp (Cottonwood Road)                                    | Diverging     | 64                 | 17.0                | B              | 63          | 27.3                | C              |
| Brundage Lane off-ramp (Union Avenue)                                       | Diverging     | 62                 | 19.9                | B              | 59          | 32.0                | D              |
| SR 99 SB off-ramp   | Diverging     | 62                 | 12.8                | B              | 61          | 18.7                | B              |
| Allen Road off-ramp   | Diverging     | 61                 | 8.2                 | A              | 60          | 22.1                | C              |
| West Beltway off-ramp   | Diverging     | — NOT APPLICABLE — |                     |                | 62          | 13.5                | B              |
| Union Avenue on-ramp to Chester Avenue off-ramp                             | Weaving       | 61                 | 16.0                | B              | 60          | 21.0                | C              |
| H Street on-ramp to SR 99 NB off-ramp                                       | Weaving       | 61                 | 16.0                | B              | 60          | 20.0                | C              |
| SR 99 NB on-ramp to Coffee Road off-ramp                                    | Weaving       | 63                 | 14.0                | B              | 61          | 20.0                | C              |
| Coffee Road Direct on-ramp to Calloway Drive loop off-ramp                  | Weaving       | 60                 | 17                  | B              | 62          | 19                  | B              |

Note: Merge/diverge calculations are based on 1,500 feet from on/off ramp. These calculations also include two right-most mainline lanes within 1,500 feet.

**Table 4-18. PM Peak Hour Measures of Effectiveness for Alternative A—  
Merging/Diverging Conditions**

| LOCATION  | ANALYSIS TYPE | YEAR 2018          |                     |                | YEAR 2038   |                     |                |
|---|---------------|--------------------|---------------------|----------------|-------------|---------------------|----------------|
|   |               | SPEED (mph)        | DENSITY (veh/ln/mi) | LOS (HCM 2000) | SPEED (mph) | DENSITY (veh/ln/mi) | LOS (HCM 2000) |
| State Route 99 NB   |               |                    |                     |                |             |                     |                |
| White Lane loop on-ramp   | Merging       | 51                 | 29.7                | D              | 44          | 41.2                | E              |
| White Lane diagonal on-ramp   | Merging       | 58                 | 31.8                | D              | 54          | 40.2                | E              |
| Ming Avenue (from C-D) on-ramp  | Merging       | 60                 | 18.2                | B              | 59          | 21.1                | C              |
| SR 58 on-ramp   | Merging       | 59                 | 22.2                | C              | 57          | 26.5                | C              |
| California Avenue loop on-ramp  | Merging       | 58                 | 27.4                | C              | 53          | 34.9                | D              |
| California Avenue diagonal on-ramp  | Merging       | 57                 | 28.6                | D              | 46          | 40.6                | E              |
| Buck Owens Boulevard/Sillect Avenue on-ramp                                 | Merging       | 59                 | 20.0                | C              | 59          | 25.2                | C              |
| White Lane off-ramp   | Diverging     | 63                 | 19.8                | B              | 61          | 30.3                | D              |
| Ming Avenue off-ramp  | Diverging     | 60                 | 17.5                | B              | 50          | 24.7                | C              |
| Westside Parkway (C-D) off-ramp   | Diverging     | 60                 | 18.7                | B              | 50          | 27.6                | C              |
| SR 58 EB off-ramp   | Diverging     | 61                 | 14.8                | B              | 59          | 18.0                | B              |
| California Avenue off-ramp  | Diverging     | 60                 | 27.7                | C              | 59          | 32.3                | D              |
| Rosedale Highway off-ramp   | Diverging     | 59                 | 23.0                | C              | 52          | 29.0                | D              |
| Buck Owens Boulevard/Sillect Avenue off-ramp                                | Diverging     | 61                 | 17.9                | B              | 60          | 21.7                | C              |
| Airport Drive off-ramp  | Diverging     | 58                 | 24.4                | C              | 56          | 30.3                | D              |
| State Route 99 SB   |               |                    |                     |                |             |                     |                |
| Airport Drive on-ramp   | Merging       | 58                 | 28.4                | D              | 51          | 41.0                | E              |
| Rosedale Highway loop on-ramp   | Merging       | 45                 | 32.6                | D              | 34          | 46.7                | E              |
| Rosedale Highway diagonal on-ramp   | Merging       | 52                 | 43.0                | E              | 32          | 73.5                | F              |
| California Avenue on-ramp   | Merging       | 53                 | 36.7                | E              | 53          | 35.7                | E              |
| SR 99 SB C-D on-ramp (Westside Parkway EB and SR 58 WB and H Street)        | Merging       | 61                 | 16.6                | B              | 52          | 23.3                | C              |
| Ming Avenue on-ramp   | Merging       | 57                 | 34.9                | D              | 29          | 70.4                | F              |
| White Lane loop on-ramp   | Merging       | 60                 | 22.8                | C              | 60          | 21.6                | C              |
| White Lane diagonal on-ramp   | Merging       | 60                 | 24.7                | C              | 60          | 24.6                | C              |
| Rosedale Highway off-ramp   | Diverging     | 60                 | 26.1                | C              | 55          | 33.0                | D              |
| California Avenue off-ramp  | Diverging     | 53                 | 45.8                | E              | 33          | 76.2                | F              |
| SR 58 EB off-ramp   | Diverging     | 57                 | 37.6                | E              | 56          | 36.2                | E              |
| SR 99 SB C-D off-ramp (Ming Avenue)   | Diverging     | 60                 | 26.5                | C              | 60          | 27.3                | C              |
| White Lane off-ramp   | Diverging     | 56                 | 28.6                | D              | 22          | 65.8                | F              |
| Westside Parkway/State Route 58 EB  |               |                    |                     |                |             |                     |                |
| West Beltway loop on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 61          | 14.2                | B              |
| West Beltway diagonal on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 62          | 17.2                | B              |
| Allen Road on-ramp  | Merging       | 61                 | 13.1                | B              | 56          | 30.2                | D              |
| Calloway Drive loop on-ramp   | Merging       | 60                 | 14.7                | B              | 56          | 29.8                | D              |
| Calloway Drive diagonal on-ramp   | Merging       | 60                 | 17.8                | B              | 55          | 31.5                | D              |
| SR 99 NB and SB on-ramp   | Merging       | 62                 | 9.7                 | A              | 61          | 13.6                | B              |
| Union Avenue loop on-ramp   | Merging       | 60                 | 22.6                | C              | 57          | 31.6                | D              |
| Union Avenue diagonal on-ramp   | Merging       | 60                 | 25.8                | C              | 57          | 37.2                | E              |
| Cottonwood Road on-ramp   | Merging       | 61                 | 23.3                | C              | 60          | 28.8                | D              |
| West Beltway off-ramp   | Diverging     | — NOT APPLICABLE — |                     |                | 44          | 25.4                | C              |
| Allen Road off-ramp   | Diverging     | 64                 | 4.3                 | A              | 62          | 17.6                | B              |
| Calloway Drive off-ramp   | Diverging     | 63                 | 13.8                | B              | 61          | 28.2                | D              |
| Coffee Road off-ramp  | Diverging     | 62                 | 21.2                | C              | 60          | 34.1                | D              |
| Westside Parkway EB C-D off-ramp (Mohawk Street and Truxtun Avenue)         | Diverging     | 62                 | 12.3                | B              | 61          | 20.8                | C              |
| H Street off-ramp   | Diverging     | 63                 | 9.3                 | A              | 63          | 18.4                | B              |
| Cottonwood Road off-ramp  | Diverging     | 61                 | 25.3                | C              | 59          | 37.9                | E              |
| Coffee Road C-D on-ramp to SR 99 SB C-D off-ramp (SR 99 SB and Ming Avenue) | Weaving       | 62                 | 13.4                | B              | 61          | 23.9                | C              |
| Chester Avenue on-ramp to Union Avenue off-ramp                             | Weaving       | 61                 | 17.7                | B              | 59          | 23.7                | C              |
| Westside Parkway/State Route 58 WB  |               |                    |                     |                |             |                     |                |
| Brundage Lane on-ramp (Cottonwood Road)                                     | Merging       | 62                 | 21.8                | C              | 60          | 29.8                | D              |
| Brundage Lane on-ramp (Union Avenue)  | Merging       | 61                 | 19.4                | B              | 60          | 26.6                | C              |
| Truxtun Avenue/Mohawk Street (C-D) on-ramp                                  | Merging       | 63                 | 16.9                | B              | 62          | 27.5                | C              |
| Coffee Road loop on-ramp  | Merging       | 62                 | 19.3                | B              | 61          | 30.2                | D              |
| Calloway Drive on-ramp  | Merging       | 61                 | 18.3                | B              | 57          | 33.8                | D              |
| Allen Road on-ramp  | Merging       | 63                 | 6.6                 | A              | 61          | 19.9                | B              |
| West Beltway loop on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 61          | 15.0                | B              |
| West Beltway diagonal on-ramp   | Merging       | — NOT APPLICABLE — |                     |                | 59          | 18.5                | B              |
| Brundage Lane off-ramp (Cottonwood Road)                                    | Diverging     | 64                 | 18.9                | B              | 63          | 26.2                | C              |
| Brundage Lane off-ramp (Union Avenue)                                       | Diverging     | 61                 | 24.0                | C              | 60          | 31.7                | D              |
| SR 99 SB off-ramp   | Diverging     | 61                 | 16.9                | B              | 61          | 20.6                | C              |
| Allen Road off-ramp   | Diverging     | 61                 | 14.8                | B              | 59          | 25.3                | C              |
| West Beltway off-ramp   | Diverging     | — NOT APPLICABLE — |                     |                | 60          | 21.1                | C              |
| Union Avenue on-ramp to Chester Avenue off-ramp                             | Weaving       | 61                 | 18.0                | B              | 60          | 23.0                | C              |
| H Street on-ramp to SR 99 NB off-ramp                                       | Weaving       | 61                 | 18.0                | B              | 60          | 21.0                | C              |
| SR 99 NB on-ramp to Coffee Road off-ramp                                    | Weaving       | 62                 | 16.0                | B              | 61          | 23.0                | C              |
| Coffee Road diagonal on-ramp to Calloway Drive loop off-ramp                | Weaving       | 60                 | 22                  | C              | 58          | 31                  | D              |

Note: Merge/diverge calculations are based on 1,500 feet from on/off ramp. These calculations also include two right-most mainline lanes within 1,500 feet.

Table 4-19. AM Peak Hour Measures of Effectiveness for Alternative A—On-Ramp and Off-Ramp Performance (1 of 2)

| FREEWAY RAMPS  | YEAR 2018           |                            |                                       |             | YEAR 2038           |                            |                                       |             |
|--|---------------------|----------------------------|---------------------------------------|-------------|---------------------|----------------------------|---------------------------------------|-------------|
|  | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) |
| <b>State Route 99 NB Off-ramps</b>                           |                     |                            |                                       |             |                     |                            |                                       |             |
| White Lane   | 680                 | 669                        | 98%                                   | 61          | 1,125               | 1,125                      | 100%                                  | 34          |
| Ming Avenue  | 740                 | 715                        | 97%                                   | 53          | 915                 | 904                        | 99%                                   | 52          |
| SR 58 WB   | 845                 | 841                        | 100%                                  | 54          | 1,125               | 1,125                      | 100%                                  | 54          |
| SR 58 EB   | 1,025               | 1,025                      | 100%                                  | 54          | 1,255               | 1,228                      | 98%                                   | 54          |
| California Avenue  | 970                 | 970                        | 100%                                  | 52          | 1,150               | 1,134                      | 99%                                   | 52          |
| Rosedale Highway   | 1,880               | 1,772                      | 94%                                   | 54          | 1,965               | 1,941                      | 99%                                   | 53          |
| Buck Owens Boulevard/Sillect Avenue                          | 570                 | 508                        | 89%                                   | 53          | 795                 | 755                        | 95%                                   | 52          |
| Airport Drive  | 1,505               | 1,477                      | 98%                                   | 52          | 1,740               | 1,570                      | 90%                                   | 51          |
| <b>State Route 99 NB On-ramps</b>                            |                     |                            |                                       |             |                     |                            |                                       |             |
| White Lane loop  | 1,630               | 1,630                      | 100%                                  | 41          | 1,640               | 1,640                      | 100%                                  | 41          |
| White Lane diagonal  | 705                 | 672                        | 95%                                   | 52          | 695                 | 674                        | 97%                                   | 52          |
| Ming Avenue (C-D on)   | 800                 | 800                        | 100%                                  | 51          | 1,000               | 1,000                      | 100%                                  | 51          |
| SR 58  | 1,100               | 1,074                      | 98%                                   | 44          | 1,185               | 1,164                      | 98%                                   | 42          |
| California Avenue loop                                       | 860                 | 709                        | 82%                                   | 44          | 1,050               | 850                        | 81%                                   | 44          |
| California Avenue diagonal                                   | 370                 | 309                        | 84%                                   | 51          | 480                 | 384                        | 80%                                   | 51          |
| Buck Owens Boulevard/Sillect Avenue                          | 400                 | 378                        | 95%                                   | 34          | 720                 | 719                        | 100%                                  | 31          |
| <b>State Route 99 SB Off-ramps</b>                           |                     |                            |                                       |             |                     |                            |                                       |             |
| Rosedale Highway   | 660                 | 660                        | 100%                                  | 54          | 1,375               | 1,370                      | 100%                                  | 54          |
| California Avenue  | 1,170               | 1,170                      | 100%                                  | 51          | 1,495               | 1,457                      | 97%                                   | 43          |
| SR 58 EB   | 905                 | 905                        | 100%                                  | 53          | 955                 | 955                        | 100%                                  | 53          |
| SR 99 SB C-D (Ming Avenue)                                   | 870                 | 819                        | 94%                                   | 53          | 935                 | 927                        | 99%                                   | 53          |
| White Lane   | 1,420               | 1,399                      | 99%                                   | 54          | 1,670               | 1,659                      | 99%                                   | 47          |
| <b>State Route 99 SB On-ramps</b>                            |                     |                            |                                       |             |                     |                            |                                       |             |
| Airport Drive  | 1,280               | 1,280                      | 100%                                  | 47          | 1,450               | 1,445                      | 100%                                  | 46          |
| Rosedale Highway loop  | 945                 | 945                        | 100%                                  | 37          | 1,100               | 1,100                      | 100%                                  | 34          |
| Rosedale Highway diagonal                                    | 735                 | 725                        | 99%                                   | 40          | 835                 | 828                        | 99%                                   | 39          |
| California Avenue  | 465                 | 463                        | 100%                                  | 50          | 560                 | 560                        | 100%                                  | 51          |
| SR 99 SB C-D (SR 58 WB and H Street)                         | 1,585               | 1,544                      | 97%                                   | 51          | 2,525               | 2,520                      | 100%                                  | 50          |
| Ming Avenue on-ramp to SR 99 NB C-D on-ramp                  | 515                 | 515                        | 100%                                  | 51          | 785                 | 767                        | 98%                                   | 50          |
| White Lane loop  | 175                 | 171                        | 98%                                   | 53          | 260                 | 255                        | 98%                                   | 52          |
| White Lane diagonal  | 370                 | 344                        | 93%                                   | 53          | 445                 | 404                        | 91%                                   | 53          |
| <b>State Route 99 NB Collector-Distributor Off-/On-ramps</b> |                     |                            |                                       |             |                     |                            |                                       |             |
| Ming Avenue C-D on-ramp                                      | 1,165               | 1,165                      | 100%                                  | 31          | 1,375               | 1,375                      | 100%                                  | 30          |
| SR 99 NB C-D on-ramp   | 845                 | 841                        | 100%                                  | 54          | 1,125               | 1,125                      | 100%                                  | 54          |
| Westside Parkway C-D off-ramp                                | 1,500               | 1,455                      | 97%                                   | 54          | 1,500               | 1,500                      | 100%                                  | 54          |
| <b>State Route 99 SB Collector-Distributor Off-/On-ramps</b> |                     |                            |                                       |             |                     |                            |                                       |             |
| SR 58 WB on-ramp   | 1,025               | 1,002                      | 98%                                   | 39          | 1,200               | 1,200                      | 100%                                  | 39          |
| Westside Parkway C-D on-ramp                                 | 560                 | 547                        | 98%                                   | 44          | 1,325               | 1,305                      | 98%                                   | 44          |

Table 4-19. AM Peak Hour Measures of Effectiveness for Alternative A—On-Ramp and Off-Ramp Performance (2 of 2)

| FREEWAY RAMPS   | YEAR 2018                 |                                  |   |                | YEAR 2038                 |                                  |   |                |
|---|---------------------------|----------------------------------|---|----------------|---------------------------|----------------------------------|---|----------------|
|   | DEMAND<br>VOLUME<br>(vph) | CORSIM<br>SERVED<br>VOLUME (vph) | PERCENTAGE<br>SERVED IN CORSIM<br>MODEL (%) | SPEED<br>(mph) | DEMAND<br>VOLUME<br>(vph) | CORSIM<br>SERVED<br>VOLUME (vph) | PERCENTAGE<br>SERVED IN CORSIM<br>MODEL (%) | SPEED<br>(mph) |
| Westside Parkway/State Route 58 EB Off-ramps              |                           |                                  |   |                |                           |                                  |   |                |
| West Beltway  | — NOT APPLICABLE —        |                                  |   |                | 745                       | 743                              | 100%  | 50             |
| Allen Road  | 60                        | 60                               | 100%  | 55             | 380                       | 374                              | 98%   | 53             |
| Calloway Drive  | 525                       | 525                              | 100%  | 54             | 960                       | 954                              | 99%   | 53             |
| Coffee Road   | 640                       | 640                              | 100%  | 53             | 1,025                     | 1,006                            | 98%   | 53             |
| Mohawk Street/Truxtun Avenue C-D                          | 2,390                     | 2,371                            | 99%   | 53             | 3,090                     | 3,031                            | 98%   | 52             |
| SR 99 SB/Ming Avenue C-D                                  | 1,130                     | 1,107                            | 98%   | 54             | 1,880                     | 1,852                            | 99%   | 53             |
| H Street  | 260                       | 256                              | 98%   | 54             | 282                       | 268                              | 95%   | 54             |
| Union Avenue  | 715                       | 709                              | 99%   | 54             | 1,035                     | 988                              | 95%   | 54             |
| Cottonwood Road   | 415                       | 415                              | 100%  | 54             | 630                       | 605                              | 96%   | 53             |
| Westside Parkway/State Route 58 EB On-ramps               |                           |                                  |   |                |                           |                                  |   |                |
| West Beltway loop   | — NOT APPLICABLE —        |                                  |   |                | 1,525                     | 1,406                            | 92%   | 48             |
| West Beltway diagonal                                     |                           |                                  |   |                | 290                       | 282                              | 97%   | 54             |
| Allen Road  | 1,710                     | 1,707                            | 100%  | 42             | 2,000                     | 1,990                            | 100%  | 44             |
| Calloway Drive loop                                       | 740                       | 737                              | 100%  | 47             | 940                       | 933                              | 99%   | 47             |
| Calloway Drive diagonal                                   | 1,060                     | 1,057                            | 100%  | 51             | 1,150                     | 1,130                            | 98%   | 50             |
| Coffee Road (C-D)   | 1,400                     | 1,379                            | 99%   | 53             | 1,875                     | 1,874                            | 100%  | 52             |
| SR 99 NB and SR 99 SB                                     | 1,565                     | 1,565                            | 100%  | 52             | 1,887                     | 1,857                            | 98%   | 52             |
| Chester Avenue  | 750                       | 734                              | 98%   | 51             | 1,025                     | 1,008                            | 98%   | 51             |
| Union Avenue loop   | 320                       | 287                              | 90%   | 53             | 340                       | 325                              | 96%   | 52             |
| Union Avenue diagonal                                     | 345                       | 345                              | 100%  | 52             | 325                       | 325                              | 100%  | 52             |
| Cottonwood Road   | 300                       | 300                              | 100%  | 52             | 310                       | 309                              | 100%  | 52             |
| Westside Parkway/State Route 58 WB Off-ramps              |                           |                                  |   |                |                           |                                  |   |                |
| Cottonwood Road   | 255                       | 253                              | 99%   | 54             | 235                       | 215                              | 91%   | 54             |
| Brundage Lane   | 670                       | 667                              | 100%  | 52             | 1,180                     | 1,180                            | 100%  | 19             |
| Chester Avenue  | 975                       | 919                              | 94%   | 54             | 1,030                     | 1,009                            | 98%   | 54             |
| SR 99 NB  | 1,100                     | 1,078                            | 98%   | 54             | 1,185                     | 1,167                            | 98%   | 54             |
| SR 99 SB  | 1,025                     | 1,001                            | 98%   | 52             | 1,200                     | 1,200                            | 100%  | 52             |
| Coffee Road   | 1,670                     | 1,670                            | 100%  | 53             | 1,950                     | 1,910                            | 98%   | 53             |
| Calloway Drive diagonal                                   | 650                       | 611                              | 94%   | 54             | 650                       | 649                              | 100%  | 54             |
| Calloway Drive loop                                       | 950                       | 948                              | 100%  | 53             | 910                       | 884                              | 97%   | 53             |
| Allen Road  | 1,085                     | 988                              | 91%   | 54             | 1,150                     | 1,112                            | 97%   | 52             |
| West Beltway  | — NOT APPLICABLE —        |                                  |   |                | 1,500                     | 1,403                            | 94%   | 54             |
| Westside Parkway/State Route 58 WB On-ramps               |                           |                                  |   |                |                           |                                  |   |                |
| Cottonwood Road   | 260                       | 244                              | 94%   | 51             | 315                       | 303                              | 96%   | 50             |
| Brundage Lane   | 385                       | 343                              | 89%   | 49             | 365                       | 350                              | 96%   | 49             |
| Union Avenue  | 565                       | 565                              | 100%  | 51             | 565                       | 532                              | 94%   | 51             |
| H Street  | 695                       | 659                              | 95%   | 50             | 635                       | 635                              | 100%  | 50             |
| SR 99 NB/Ming Avenue                                      | 1,210                     | 1,210                            | 100%  | 44             | 1,500                     | 1,500                            | 100%  | 41             |
| Truxtun Avenue/Mohawk Street C-D                          | 1,620                     | 1,551                            | 96%   | 63             | 2,160                     | 2,127                            | 98%   | 62             |
| Coffee Road loop  | 130                       | 125                              | 95%   | 51             | 150                       | 150                              | 100%  | 51             |
| Coffee Road diagonal                                      | 255                       | 242                              | 82%   | 54             | 300                       | 282                              | 94%   | 54             |
| Calloway Drive  | 320                       | 320                              | 100%  | 52             | 500                       | 500                              | 100%  | 53             |
| Allen Road  | 120                       | 120                              | 100%  | 50             | 350                       | 338                              | 97%   | 50             |
| West Beltway loop   |                           |                                  |   |                | 320                       | 299                              | 93%   | 49             |
| West Beltway diagonal                                     | — NOT APPLICABLE —        |                                  |   |                | 305                       | 296                              | 97%   | 54             |
| Westside Parkway EB Collector-Distributor 1 Off-/On-ramps |                           |                                  |   |                |                           |                                  |   |                |
| Coffee Road loop on-ramp                                  | 830                       | 830                              | 100%  | 41             | 915                       | 915                              | 100%  | 41             |
| Coffee Road diagonal on-ramp                              | 570                       | 542                              | 95%   | 53             | 960                       | 949                              | 99%   | 52             |
| Westside Parkway EB Collector-Distributor 2 Off-/On-ramps |                           |                                  |   |                |                           |                                  |   |                |
| Westside Parkway C-D on-ramp                              | 2,390                     | 2,371                            | 99%   | 53             | 3,090                     | 3,031                            | 98%   | 52             |
| Mohawk Street off-ramp                                    | 1,205                     | 1,160                            | 96%   | 49             | 1,510                     | 1,497                            | 99%   | 49             |
| Mohawk Street on-ramp                                     | —                         | —                                | —   | —              | —                         | —                                | —   | —              |
| Truxtun Avenue off-ramp                                   | 1,185                     | 1,185                            | 100%  | 45             | 1,580                     | 1,529                            | 97%   | 45             |
| Westside Parkway EB Collector-Distributor 3 Off-/On-ramps |                           |                                  |   |                |                           |                                  |   |                |
| Westside Parkway EB C-D on-ramp                           | 1,130                     | 1,107                            | 98%   | 53             | 1,880                     | 1,852                            | 99%   | 53             |
| SR 99 SB C-D off-ramp                                     | 560                       | 549                              | 98%   | 48             | 1,325                     | 1,305                            | 98%   | 49             |
| SR 99 SB C-D on-ramp                                      | 870                       | 816                              | 94%   | 47             | 935                       | 926                              | 99%   | 47             |
| Westside Parkway WB Collector-Distributor Off-/On-ramps   |                           |                                  |   |                |                           |                                  |   |                |
| Truxtun Avenue on-ramp                                    | 780                       | 751                              | 96%   | 63             | 800                       | 780                              | 98%   | 63             |
| Mohawk Street loop on-ramp                                | 445                       | 444                              | 100%  | 47             | 505                       | 502                              | 99%   | 47             |
| Mohawk Street direct on-ramp                              | 395                       | 365                              | 92%   | 51             | 855                       | 840                              | 98%   | 51             |

**Table 4-20. PM Peak Hour Measures of Effectiveness for Alternative A—On-Ramp and Off-Ramp Performance (1 of 2)**

| FREEWAY RAMPS  | YEAR 2018           |                            |                                       |             | YEAR 2038           |                            |                                       |             |
|--|---------------------|----------------------------|---------------------------------------|-------------|---------------------|----------------------------|---------------------------------------|-------------|
|  | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) |
| <b>State Route 99 NB Off-ramps</b>                           |                     |                            |                                       |             |                     |                            |                                       |             |
| White Lane   | 690                 | 676                        | 98%                                   | 62          | 1,080               | 1,053                      | 98%                                   | 60          |
| Ming Avenue  | 835                 | 835                        | 100%                                  | 52          | 850                 | 802                        | 94%                                   | 52          |
| SR 58 WB   | 830                 | 830                        | 100%                                  | 54          | 1,130               | 1,130                      | 100%                                  | 54          |
| SR 58 EB   | 1,155               | 1,105                      | 96%                                   | 54          | 1,665               | 1,609                      | 97%                                   | 53          |
| California Avenue  | 630                 | 626                        | 99%                                   | 52          | 710                 | 709                        | 100%                                  | 51          |
| Rosedale Highway   | 1,760               | 1,729                      | 98%                                   | 53          | 1,800               | 1,673                      | 93%                                   | 53          |
| Buck Owens Boulevard/Sillect Avenue                          | 365                 | 365                        | 100%                                  | 52          | 400                 | 365                        | 91%                                   | 53          |
| Airport Drive  | 1,365               | 1,278                      | 94%                                   | 52          | 1,365               | 1,275                      | 93%                                   | 52          |
| <b>State Route 99 NB On-ramps</b>                            |                     |                            |                                       |             |                     |                            |                                       |             |
| White Lane loop  | 1,485               | 1,485                      | 100%                                  | 44          | 1,655               | 1,476                      | 89%                                   | 44          |
| White Lane diagonal  | 605                 | 592                        | 98%                                   | 53          | 685                 | 665                        | 97%                                   | 52          |
| Ming Avenue (C-D on)   | 705                 | 705                        | 100%                                  | 52          | 850                 | 846                        | 100%                                  | 51          |
| SR 58  | 940                 | 940                        | 100%                                  | 45          | 1,120               | 1,101                      | 98%                                   | 43          |
| California Avenue loop                                       | 905                 | 728                        | 80%                                   | 45          | 1,375               | 908                        | 66%                                   | 44          |
| California Avenue diagonal                                   | 660                 | 499                        | 76%                                   | 51          | 900                 | 666                        | 74%                                   | 50          |
| Buck Owens Boulevard/Sillect Avenue                          | 715                 | 715                        | 100%                                  | 31          | 790                 | 783                        | 99%                                   | 31          |
| <b>State Route 99 SB Off-ramps</b>                           |                     |                            |                                       |             |                     |                            |                                       |             |
| Rosedale Highway   | 710                 | 710                        | 100%                                  | 54          | 1,310               | 1,292                      | 99%                                   | 53          |
| California Avenue  | 1,395               | 1,373                      | 98%                                   | 44          | 1,655               | 1,655                      | 100%                                  | 30          |
| SR 58 EB   | 1,375               | 1,346                      | 98%                                   | 52          | 1,440               | 1,375                      | 95%                                   | 52          |
| SR 99 SB C-D (Ming Avenue)                                   | 1,120               | 1,100                      | 98%                                   | 53          | 1,205               | 1,199                      | 100%                                  | 52          |
| White Lane   | 2,015               | 2,009                      | 100%                                  | 52          | 2,070               | 1,855                      | 90%                                   | 9           |
| <b>State Route 99 SB On-ramps</b>                            |                     |                            |                                       |             |                     |                            |                                       |             |
| Airport Drive  | 1,765               | 1,765                      | 100%                                  | 46          | 2,070               | 2,070                      | 100%                                  | 40          |
| Rosedale Highway loop  | 1,335               | 1,335                      | 100%                                  | 34          | 1,375               | 1,350                      | 98%                                   | 29          |
| Rosedale Highway diagonal                                    | 1,105               | 1,068                      | 97%                                   | 37          | 1,340               | 1,225                      | 91%                                   | 32          |
| California Avenue  | 920                 | 838                        | 91%                                   | 51          | 940                 | 825                        | 88%                                   | 50          |
| SR 99 SB C-D (SR 58 WB and H Street)                         | 2,055               | 2,041                      | 99%                                   | 51          | 2,740               | 2,740                      | 100%                                  | 47          |
| Ming Avenue on-ramp to SR 99 NB C-D on-ramp                  | 650                 | 650                        | 100%                                  | 51          | 845                 | 845                        | 100%                                  | 28          |
| White Lane loop  | 510                 | 504                        | 99%                                   | 52          | 550                 | 542                        | 99%                                   | 51          |
| White Lane diagonal  | 480                 | 287                        | 60%                                   | 53          | 645                 | 555                        | 86%                                   | 53          |
| <b>State Route 99 NB Collector-Distributor Off-/On-ramps</b> |                     |                            |                                       |             |                     |                            |                                       |             |
| Ming Avenue C-D on-ramp                                      | 1,095               | 1,095                      | 100%                                  | 33          | 1,350               | 1,337                      | 99%                                   | 32          |
| SR 99 NB C-D on-ramp   | 830                 | 830                        | 100%                                  | 54          | 1,130               | 1,130                      | 100%                                  | 54          |
| Westside Parkway C-D off-ramp                                | 1,220               | 1,220                      | 100%                                  | 54          | 1,630               | 1,630                      | 100%                                  | 53          |
| <b>State Route 99 SB Collector-Distributor Off-/On-ramps</b> |                     |                            |                                       |             |                     |                            |                                       |             |
| SR 58 WB on-ramp   | 1,225               | 1,195                      | 98%                                   | 39          | 1,225               | 1,213                      | 99%                                   | 39          |
| Westside Parkway C-D on-ramp                                 | 1,515               | 1,457                      | 96%                                   | 44          | 1,515               | 1,465                      | 97%                                   | 41          |

Table 4-20. PM Peak Hour Measures of Effectiveness for Alternative A—On-Ramp and Off-Ramp Performance (2 of 2)

| FREEWAY RAMPS   | YEAR 2018           |                            |                                       |             | YEAR 2038           |                            |                                       |             |
|---|---------------------|----------------------------|---------------------------------------|-------------|---------------------|----------------------------|---------------------------------------|-------------|
|   | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) | DEMAND VOLUME (vph) | CORSIM SERVED VOLUME (vph) | PERCENTAGE SERVED IN CORSIM MODEL (%) | SPEED (mph) |
| Westside Parkway/State Route 58 EB Off-ramps              |                     |                            |                                       |             |                     |                            |                                       |             |
| West Beltway  | — NOT APPLICABLE —  |                            |                                       |             | 870                 | 861                        | 99%                                   | 49          |
| Allen Road  | 85                  | 81                         | 95%                                   | 54          | 310                 | 294                        | 95%                                   | 54          |
| Calloway Drive  | 475                 | 469                        | 99%                                   | 54          | 800                 | 752                        | 94%                                   | 53          |
| Coffee Road   | 595                 | 547                        | 92%                                   | 53          | 825                 | 802                        | 97%                                   | 53          |
| Mohawk Street/Truxtun Avenue C-D                          | 1,760               | 1,728                      | 98%                                   | 54          | 2,700               | 2,611                      | 97%                                   | 53          |
| SR 99 SB/Ming Avenue C-D                                  | 1,420               | 1,354                      | 95%                                   | 53          | 2,170               | 2,112                      | 97%                                   | 52          |
| H Street  | 290                 | 290                        | 100%                                  | 54          | 308                 | 308                        | 100%                                  | 54          |
| Union Avenue  | 780                 | 757                        | 97%                                   | 54          | 1,025               | 994                        | 97%                                   | 54          |
| Cottonwood Road   | 440                 | 424                        | 96%                                   | 54          | 905                 | 845                        | 93%                                   | 53          |
| Westside Parkway/State Route 58 EB On-ramps               |                     |                            |                                       |             |                     |                            |                                       |             |
| West Beltway loop   | — NOT APPLICABLE —  |                            |                                       |             | 1,340               | 1,320                      | 99%                                   | 48          |
| West Beltway diagonal                                     | — NOT APPLICABLE —  |                            |                                       |             | 275                 | 270                        | 98%                                   | 54          |
| Allen Road  | 1,280               | 1,170                      | 91%                                   | 47          | 1,875               | 1,833                      | 98%                                   | 46          |
| Calloway Drive loop                                       | 715                 | 690                        | 97%                                   | 47          | 1,040               | 1,040                      | 100%                                  | 47          |
| Calloway Drive diagonal                                   | 975                 | 960                        | 98%                                   | 52          | 1,110               | 1,055                      | 95%                                   | 52          |
| Coffee Road (C-D)   | 1,650               | 1,650                      | 100%                                  | 53          | 2,170               | 2,155                      | 99%                                   | 52          |
| SR 99 NB and SR 99 SB                                     | 2,120               | 2,041                      | 96%                                   | 52          | 2,698               | 2,553                      | 95%                                   | 51          |
| Chester Avenue  | 990                 | 952                        | 96%                                   | 50          | 1,190               | 1,162                      | 98%                                   | 50          |
| Union Avenue loop   | 560                 | 536                        | 96%                                   | 53          | 665                 | 655                        | 98%                                   | 52          |
| Union Avenue diagonal                                     | 415                 | 415                        | 100%                                  | 52          | 575                 | 572                        | 99%                                   | 52          |
| Cottonwood Road   | 390                 | 390                        | 100%                                  | 52          | 300                 | 300                        | 100%                                  | 52          |
| Westside Parkway/State Route 58 WB Off-ramps              |                     |                            |                                       |             |                     |                            |                                       |             |
| Cottonwood Road   | 260                 | 260                        | 100%                                  | 54          | 305                 | 305                        | 100%                                  | 54          |
| Brundage Lane   | 900                 | 894                        | 99%                                   | 52          | 990                 | 990                        | 100%                                  | 44          |
| Chester Avenue  | 900                 | 883                        | 98%                                   | 51          | 1,115               | 1,074                      | 96%                                   | 52          |
| SR 99 NB  | 940                 | 940                        | 100%                                  | 54          | 1,120               | 1,103                      | 98%                                   | 54          |
| SR 99 SB  | 1,250               | 1,250                      | 100%                                  | 52          | 1,225               | 1,213                      | 99%                                   | 52          |
| Coffee Road   | 1,855               | 1,812                      | 98%                                   | 53          | 1,575               | 1,575                      | 100%                                  | 54          |
| Calloway Drive diagonal                                   | 885                 | 841                        | 95%                                   | 53          | 995                 | 975                        | 98%                                   | 53          |
| Calloway Drive loop                                       | 1,235               | 1,198                      | 97%                                   | 53          | 1,350               | 1,325                      | 98%                                   | 52          |
| Allen Road  | 1,815               | 1,749                      | 96%                                   | 54          | 2,230               | 2,120                      | 95%                                   | 51          |
| West Beltway  | — NOT APPLICABLE —  |                            |                                       |             | 2,385               | 2,308                      | 97%                                   | 46          |
| Westside Parkway/State Route 58 WB On-ramps               |                     |                            |                                       |             |                     |                            |                                       |             |
| Cottonwood Road   | 410                 | 408                        | 100%                                  | 50          | 530                 | 505                        | 95%                                   | 50          |
| Brundage Lane   | 345                 | 336                        | 97%                                   | 49          | 360                 | 351                        | 98%                                   | 49          |
| Union Avenue  | 730                 | 730                        | 100%                                  | 51          | 770                 | 759                        | 99%                                   | 51          |
| H Street  | 875                 | 816                        | 93%                                   | 50          | 660                 | 647                        | 98%                                   | 50          |
| SR 99 NB/Ming Avenue                                      | 1,220               | 1,217                      | 100%                                  | 44          | 1,630               | 1,630                      | 100%                                  | 37          |
| Truxtun Avenue/Mohawk Street C-D                          | 2,599               | 2,457                      | 95%                                   | 62          | 3,780               | 3,672                      | 97%                                   | 61          |
| Coffee Road loop  | 270                 | 231                        | 86%                                   | 51          | 240                 | 222                        | 93%                                   | 51          |
| Coffee Road diagonal                                      | 415                 | 403                        | 97%                                   | 54          | 550                 | 513                        | 93%                                   | 54          |
| Calloway Drive  | 482                 | 482                        | 100%                                  | 52          | 880                 | 857                        | 97%                                   | 52          |
| Allen Road  | 65                  | 65                         | 100%                                  | 51          | 370                 | 356                        | 96%                                   | 50          |
| West Beltway loop   | — NOT APPLICABLE —  |                            |                                       |             | 425                 | 425                        | 100%                                  | 49          |
| West Beltway diagonal                                     | — NOT APPLICABLE —  |                            |                                       |             | 345                 | 331                        | 96%                                   | 53          |
| Westside Parkway EB Collector-Distributor 1 Off-/On-ramps |                     |                            |                                       |             |                     |                            |                                       |             |
| Coffee Road loop on-ramp                                  | 1,100               | 1,100                      | 100%                                  | 41          | 1,100               | 1,100                      | 100%                                  | 41          |
| Coffee Road diagonal on-ramp                              | 1,070               | 1,070                      | 100%                                  | 53          | 1,070               | 1,053                      | 98%                                   | 52          |
| Westside Parkway EB Collector-Distributor 2 Off-/On-ramps |                     |                            |                                       |             |                     |                            |                                       |             |
| Westside Parkway C-D on-ramp                              | 2,700               | 2,610                      | 97%                                   | 53          | 2,700               | 2,611                      | 97%                                   | 53          |
| Mohawk Street off-ramp                                    | 1,400               | 1,377                      | 98%                                   | 49          | 1,400               | 1,355                      | 97%                                   | 49          |
| Mohawk Street on-ramp                                     | —                   | —                          | —                                     | —           | —                   | —                          | —                                     | —           |
| Truxtun Avenue off-ramp                                   | 1,300               | 1,211                      | 93%                                   | 45          | 1,300               | 1,247                      | 96%                                   | 45          |
| Westside Parkway EB Collector-Distributor 3 Off-/On-ramps |                     |                            |                                       |             |                     |                            |                                       |             |
| Westside Parkway EB C-D on-ramp                           | 2,170               | 2,094                      | 96%                                   | 53          | 2,170               | 2,112                      | 97%                                   | 52          |
| SR 99 SB C-D off-ramp                                     | 1,515               | 1,462                      | 97%                                   | 48          | 1,515               | 1,474                      | 97%                                   | 46          |
| SR 99 SB C-D on-ramp                                      | 1,205               | 1,116                      | 93%                                   | 47          | 1,205               | 1,196                      | 99%                                   | 46          |
| Westside Parkway WB Collector-Distributor Off-/On-ramps   |                     |                            |                                       |             |                     |                            |                                       |             |
| Truxtun Avenue on-ramp                                    | 1,190               | 1,123                      | 94%                                   | 63          | 1,710               | 1,653                      | 97%                                   | 63          |
| Mohawk Street loop on-ramp                                | 824                 | 808                        | 98%                                   | 47          | 1,025               | 1,000                      | 98%                                   | 47          |
| Mohawk Street direct on-ramp                              | 585                 | 526                        | 90%                                   | 51          | 1,045               | 1,014                      | 97%                                   | 50          |

Table 4-21. Ramp Termini and Intersection Level of Service for Alternative A (1 of 3)

| INTERSECTION                                 | SIGNAL CONTROL                     | YEAR 2018              |                     |         |                     | YEAR 2038 |                     |         |                     |
|--|------------------------------------|------------------------|---------------------|---------|---------------------|-----------|---------------------|---------|---------------------|
|  |                                    | AM PEAK                |                     | PM PEAK |                     | AM PEAK   |                     | PM PEAK |                     |
|  |                                    | LOS                    | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) |
| 1. I-5 SB ramps/Stockdale Highway            | NB/SB two-way stop                 | A                      | 4.7                 | A       | 8.8                 | A         | 5.3                 | F       | 66.3                |
|  | Imp-Signal*                        | N/A                    |                     |         |                     | B         | 11.4                | B       | 11.2                |
| 2. I-5 NB ramps/Stockdale Highway            | NB/SB two-way stop                 | A                      | 6.4                 | A       | 8.4                 | A         | 7.2                 | B       | 16.8                |
| 3. SR 43 (Enos Lane)/Rosedale Highway        | 4-way stop                         | B                      | 14.4                | D       | 32.0                | D         | 28.5                | F       | 81.9                |
|  | Imp-Signal                         | N/A                    |                     |         |                     | C         | 26.8                | C       | 32.6                |
| 4. SR 43 (Enos Lane)/Stockdale Highway       | 4-way stop                         | F                      | 52.9                | F       | 86.3                | F         | >150                | F       | >150                |
|  | Imp-Signal                         | C                      | 20.5                | C       | 23.6                | B         | 15.5                | C       | 22.1                |
| 5. SR 43 (Enos Lane)/I-5 NB ramps            | EB/WB two-way stop                 | A                      | 5.5                 | B       | 11.1                | A         | 4.3                 | B       | 10.1                |
| 6. SR 43 (Enos Lane)/I-5 SB ramps            | EB/WB two-way stop                 | A                      | 8.1                 | C       | 15.8                | A         | 4.1                 | C       | 21.2                |
| 7. Stockdale Highway/Nord Road               | Signal                             | D                      | 39.5                | C       | 29.6                | C         | 34.5                | C       | 32.4                |
| 8. Stockdale Highway/Wegis Avenue            | NB/SB two-way stop                 | A                      | 7.4                 | B       | 10.5                | F         | >150                | F       | >150                |
|  | Imp-Signal*                        | N/A                    |                     |         |                     | C         | 31.5                | C       | 30.7                |
| 9. Stockdale Highway/Heath Road              | Stop (existing)<br>Signal (future) | B                      | 14.9                | B       | 18.0                | C         | 23.8                | C       | 26.7                |
| 10. Stockdale Highway/Westside Parkway       | Signal                             | A                      | 7.4                 | B       | 18.0                | A         | 9.0                 | A       | 8.3                 |
| 11. West Beltway/Westside Parkway WB ramp    | Signal                             | Does not exist in 2018 |                     |         |                     | A         | 8.5                 | B       | 17.2                |
| 12. West Beltway/Westside Parkway EB ramp    | Signal                             | Does not exist in 2018 |                     |         |                     | A         | 8.3                 | B       | 15.3                |
| 13. Allen Road/Rosedale Highway              | Signal*                            | C                      | 34.4                | D       | 41.4                | D         | 36.1                | D       | 48.0                |
| 14. Allen Road/Brimhall Road                 | Signal                             | C                      | 24.9                | C       | 31.9                | C         | 23.5                | C       | 34.4                |
| 15. Allen Road/Westside Parkway WB ramps     | Signal                             | B                      | 14.0                | C       | 29.4                | B         | 17.5                | C       | 29.3                |
| 16. Allen Road/Westside Parkway EB ramps     | Signal                             | B                      | 19.9                | A       | 8.2                 | B         | 10.9                | B       | 11.5                |
| 17. Allen Road/San Juan Avenue               | Signal*                            | C                      | 23.3                | C       | 20.6                | C         | 22.7                | C       | 26.5                |
| 18. Allen Road/Stockdale Highway             | Signal                             | C                      | 24.4                | C       | 26.0                | C         | 31.1                | C       | 33.0                |
| 19. Calloway Drive/Rosedale Highway          | Signal*                            | D                      | 47.3                | D       | 39.7                | D         | 53.2                | E       | 58.6                |
| 20. Calloway Drive/Brimhall Road             | Signal                             | C                      | 26.4                | C       | 30.5                | C         | 29.8                | C       | 35.0                |
| 21. Calloway Drive/Westside Parkway WB ramps | Signal                             | B                      | 18.3                | B       | 15.8                | B         | 19.2                | C       | 28.3                |
| 22. Calloway Drive/Westside Parkway EB ramps | Signal                             | B                      | 15.6                | A       | 7.4                 | B         | 11.2                | A       | 7.5                 |
| 23. Calloway Drive/Stockdale Highway         | Signal                             | D                      | 47.6                | C       | 31.4                | D         | 42.9                | D       | 37.0                |
| 24. Coffee Road/Rosedale Highway*            | Signal*                            | D                      | 46.1                | F       | 92.7                | E         | 64.0                | F       | 83.7                |

Table 4-21. Ramp Termini and Intersection Level of Service for Alternative A (2 of 3)

| INTERSECTION                                 | SIGNAL CONTROL                       | YEAR 2018                                    |                     |         |                     | YEAR 2038 |                     |         |                     |
|--|--------------------------------------|--|---------------------|---------|---------------------|-----------|---------------------|---------|---------------------|
|  |                                      | AM PEAK                                      |                     | PM PEAK |                     | AM PEAK   |                     | PM PEAK |                     |
|  |                                      | LOS  | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) |
| 25. Coffee Road/Brimhall Road                | Signal                               | C  | 22.4                | C       | 26.4                | C         | 32.0                | C       | 31.6                |
| 26. Coffee Road/Westside Parkway WB ramps    | Unsignalized                         | N/A  |                     |         |                     | N/A       |                     |         |                     |
| 27. Coffee Road/Westside Parkway EB ramps    | Signal                               | B  | 16.9                | A       | 7.2                 | B         | 18.2                | B       | 11.0                |
| 28. Coffee Road/Truxtun Avenue               | Signal                               | B  | 13.3                | B       | 15.3                | B         | 12.4                | B       | 18.5                |
| 29. Coffee Road/Stockdale Highway            | Signal*                              | D  | 37.7                | D       | 52.7                | E         | 64.7                | F       | 92.6                |
| 30. Mohawk Street/Rosedale Highway           | Stop (existing)*<br>Signal (future)* | D  | 50.4                | F       | 87.0                | E         | 64.5                | F       | 106.9               |
| 31. Mohawk Street/WSP WB ramps               | Signal                               | N/A  |                     |         |                     | N/A       |                     |         |                     |
| 32. Mohawk Street/WSP EB ramps               | Signal                               | C  | 21.5                | B       | 16.4                | B         | 11.8                | B       | 13.8                |
| 33. Mohawk Street/Truxtun Avenue             | Signal                               | C  | 26.8                | C       | 27.1                | C         | 26.4                | C       | 25.5                |
| 34. Mohawk Street/California Avenue          | Signal*                              | C  | 30.8                | E       | 62.3                | D         | 36.1                | E       | 65.4                |
| 35. Stockdale Highway/California Avenue      | Signal*                              | D  | 39.7                | E       | 58.5                | D         | 42.4                | E       | 74.2                |
| 36. Airport Drive/State Road–SR 204 off-ramp | Signal                               | C  | 23.6                | C       | 22.3                | C         | 22.2                | C       | 22.6                |
| 37. Airport Drive/SR 99 NB ramp              | Signal                               | A  | 9.3                 | B       | 12.0                | A         | 9.5                 | B       | 11.6                |
| 38. Buck Owens Boulevard/Rio Mirada Drive    | Signal                               | C  | 23.4                | C       | 23.4                | C         | 21.7                | C       | 25.0                |
| 39. SR 99 NB ramps/Buck Owens Boulevard      | Signal                               | C  | 34.4                | D       | 43.7                | D         | 41.7                | D       | 43.4                |
| 40. Rosedale Highway/Camino Del Rio Court    | Signal                               | C  | 27.1                | D       | 38.5                | C         | 30.4                | D       | 49.4                |
| 41. Rosedale Highway/SR 99 SB ramps          | Signal                               | B  | 17.6                | B       | 16.8                | C         | 21.2                | C       | 21.8                |
| 42. Rosedale Highway/SR99 NB ramps           | Signal                               | C  | 25.9                | C       | 28.9                | C         | 33.2                | D       | 42.9                |
| 43. 24th Street/Oak Street                   | Signal                               | C  | 32.1                | C       | 32.2                | C         | 25.9                | D       | 38.4                |
| 44. Truxtun Avenue/Empire Drive              | Signal*                              | C  | 29.9                | C       | 27.0                | C         | 29.4                | C       | 28.1                |
| 45. Truxtun Avenue/Oak Street                | Signal                               | C  | 30.3                | D       | 44.3                | D         | 52.0                | D       | 46.3                |
| 46. California Avenue/Chester Lane           | Signal                               | C  | 20.8                | D       | 53.6                | C         | 20.2                | F       | 130.7               |
| 47. California Avenue/SR 99 SB ramps         | Signal                               | D  | 43.5                | E       | 65.9                | E         | 57.8                | F       | 90.3                |
| 48. California Avenue/SR 99 NB ramps         | Signal                               | C  | 25.6                | C       | 25.8                | C         | 32.5                | C       | 25.9                |
| 49. California Avenue/Oak Street             | Signal                               | C  | 27.8                | D       | 41.0                | C         | 29.7                | E       | 58.6                |
| 50. Stockdale Highway/Stine Road             | Signal*                              | C  | 25.4                | D       | 52.5                | C         | 30.7                | F       | 89.5                |
| 51. Stockdale Highway/Real Road              | Signal                               | D  | 39.9                | D       | 40.6                | D         | 36.0                | D       | 53.1                |
| 52. Stockdale Highway/SR 99 SB ramp          | Signal                               | Intersection does not exist in Alternative A |                     |         |                     |           |                     |         |                     |

Table 4-21. Ramp Termini and Intersection Level of Service for Alternative A (3 of 3)

| INTERSECTION                                     | SIGNAL CONTROL | YEAR 2018                                    |                     |         |                     | YEAR 2038 |                     |         |                     |
|--|----------------|--|---------------------|---------|---------------------|-----------|---------------------|---------|---------------------|
|  |                | AM PEAK                                      |                     | PM PEAK |                     | AM PEAK   |                     | PM PEAK |                     |
|  |                | LOS  | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) | LOS       | AVG DELAY (sec/veh) | LOS     | AVG DELAY (sec/veh) |
| 53. Brundage Lane/Oak Street                     | Signal         | C  | 23.6                | C       | 28.1                | C         | 25.9                | C       | 30.4                |
| 54. Real Road/SR 58                              | Signal         | Intersection does not exist in Alternative A |                     |         |                     |           |                     |         |                     |
| 55. Wible Road/SR 99 NB ramps                    | Signal         | Intersection does not exist in Alternative A |                     |         |                     |           |                     |         |                     |
| 56. Ming Avenue/New Stine Road                   | Signal*        | C  | 34.4                | D       | 37.0                | D         | 42.1                | D       | 44.4                |
| 57. Ming Avenue/Real Road                        | Signal         | C  | 30.4                | C       | 30.2                | C         | 30.6                | C       | 29.9                |
| 58. Ming Avenue/SR 99 SB ramps                   | Signal         | A  | 7.6                 | A       | 2.8                 | A         | 8.8                 | B       | 15.7                |
| 59. Ming Avenue/Wible Road                       | Signal         | B  | 15.6                | C       | 25.9                | C         | 25.8                | C       | 28.2                |
| 60. Ming Avenue/SR 99 NB ramps                   | Signal         | C  | 24.4                | C       | 33.1                | C         | 25.1                | C       | 33.6                |
| 61. Ming Avenue/Castro Lane                      | Signal         | C  | 30.0                | C       | 29.9                | C         | 30.1                | D       | 39.8                |
| 62. White Lane/Wible Road                        | Signal*        | E  | 64.8                | E       | 71.9                | F         | 83.6                | F       | 138.7               |
| 63. White Lane/SR 99 SB ramps                    | Signal*        | C  | 20.6                | F       | 90.0                | C         | 29.0                | F       | 88.8                |
| 64. White Lane/SR 99 NB ramps                    | Signal*        | B  | 10.7                | B       | 12.3                | C         | 23.9                | C       | 20.1                |
| 65. White Lane/Hughes Lane                       | Signal*        | D  | 36.6                | D       | 45.2                | D         | 42.6                | D       | 48.3                |
| 66. H Street/Brundage Lane                       | Signal         | C  | 24.2                | D       | 40.0                | C         | 26.2                | D       | 53.8                |
| 67. H Street/SR 58 WB ramp                       | Signal         | C  | 23.9                | D       | 45.4                | B         | 15.7                | D       | 35.1                |
| 68. H Street/SR 58 EB ramp                       | Signal         | C  | 24.6                | C       | 21.0                | C         | 23.2                | C       | 25.7                |
| 69. H Street/Ming Avenue                         | Signal*        | C  | 30.0                | D       | 40.5                | D         | 35.0                | D       | 42.1                |
| 70. Chester Avenue/Brundage Lane                 | Signal         | C  | 31.1                | D       | 40.5                | C         | 26.2                | D       | 53.8                |
| 71. Chester Avenue/SR 58 WB ramp                 | Signal         | B  | 19.4                | C       | 24.9                | C         | 23.9                | C       | 27.2                |
| 72. Chester Avenue/SR 58 EB ramp                 | Signal         | C  | 25.7                | B       | 17.2                | C         | 29.9                | C       | 31.1                |
| 73. Chester Avenue/Ming Avenue                   | Signal*        | D  | 36.0                | D       | 42.8                | D         | 36.4                | D       | 47.6                |
| 74. Union Avenue/Brundage Lane                   | Signal         | C  | 32.7                | C       | 28.5                | D         | 42.7                | D       | 47.8                |
| 75. Brundage Lane/SR 58 WB ramps                 | Signal         | C  | 32.9                | C       | 22.4                | C         | 24.8                | D       | 41.8                |
| 76. Union Avenue/SR 58 EB ramps                  | Signal         | B  | 13.9                | B       | 12.5                | B         | 19.9                | B       | 18.9                |
| 77. Cottonwood Road–MLK/Brundage Lane            | Signal         | C  | 23.1                | C       | 25.9                | C         | 25.2                | C       | 27.6                |
| 78. Cottonwood Road–Brundage Lane/SR 58 WB ramps | Signal         | C  | 23.1                | C       | 27.3                | C         | 23.3                | C       | 33.1                |
| 79. Cottonwood Road/SR 58 EB ramps               | Signal         | B  | 11.2                | B       | 19.2                | B         | 11.0                | B       | 18.8                |

\*LOS summary based on SYNCHRO 6

Source: Parsons

## 4.5 Traffic Performance of Build Alternative B

Alternative B proposes to connect the east end of the Westside Parkway to State Route 58 east near Cottonwood Road by means of a new freeway. This proposed alternative would begin at the Mohawk Street interchange and turn in a southeasterly direction. As illustrated on Figure 4-10, it would span the Kern River, Truxtun Avenue, Carrier Canal, California Avenue and Stockdale Highway before joining the existing State Route 58 east at its existing terminus near the State Route 58/State Route 99 interchange. Improvements on State Route 58 would continue to extend through the H Street and Chester Avenue interchange to Cottonwood Road.

State Route 58 would maintain its existing connections to State Route 99 by means of freeway to freeway connectors. The existing westbound State Route 58 to northbound State Route 99 connector, southbound State Route 99 to eastbound State Route 58 connector, and northbound State Route 99 to eastbound State Route 58 would be preserved with modifications. New branch connectors would be constructed for the eastbound State Route 58 to southbound State Route 99, and northbound State Route 99 to westbound State Route 58 movements.

Auxiliary lanes would be provided on State Route 99 to accommodate the additional traffic from these branch connectors. The limits of improvements on State Route 99 would extend from the interchange at State Route 58 to the Wilson Road overcrossing. All ramps in this vicinity would have to be realigned to provide for the additional lanes. The Wible Road on- and off-ramps south of the existing State Route 99/State Route 58 interchange would be removed to accommodate the northbound State Route 99 on ramp from Ming Avenue. The Stockdale Avenue off-ramp from southbound State Route 99 to the eastbound State Route 58 connector would be removed. Local access from Real Road to State Route 58 and to southbound State Route 99 would also be removed.

The traffic lane configuration of the freeway segments along State Route 58, the Westside Parkway, and State Route 99 are illustrated on Figure 4-11. Also depicted are the relative locations of freeway on- and off-ramps along with traffic demand volumes in the opening year (2018) and the design year.

The alternative B new freeway would bisect existing business parks and residential neighborhoods. The following roads are proposed to cross over or under the proposed freeway alignment:

- Truxtun Avenue
- Commerce Drive
- California Avenue
- Marella Way
- La Mirada Drive
- Stockdale Highway and Stine Road
- South Real Road

The potential closure of Monclair Street, Woodlake Drive, Kensington Avenue, Hillsborough Drive, Kentfield Drive, Joseph Drive, Dunlap Street, Ford Avenue, and Williamson Way would modify existing circulation.

Figure 3-12, shown previously, illustrated the difference between 2038 alternative B and no-build daily traffic volumes, as assigned by the travel forecast model. The bandwidths illustrated in red depicted roadways which receive additional volumes of traffic as a result of constructing the freeway-to-freeway Centennial Project connector. Bandwidths illustrated in



Figure 4-10: Alternative B Proposed Alignment

1

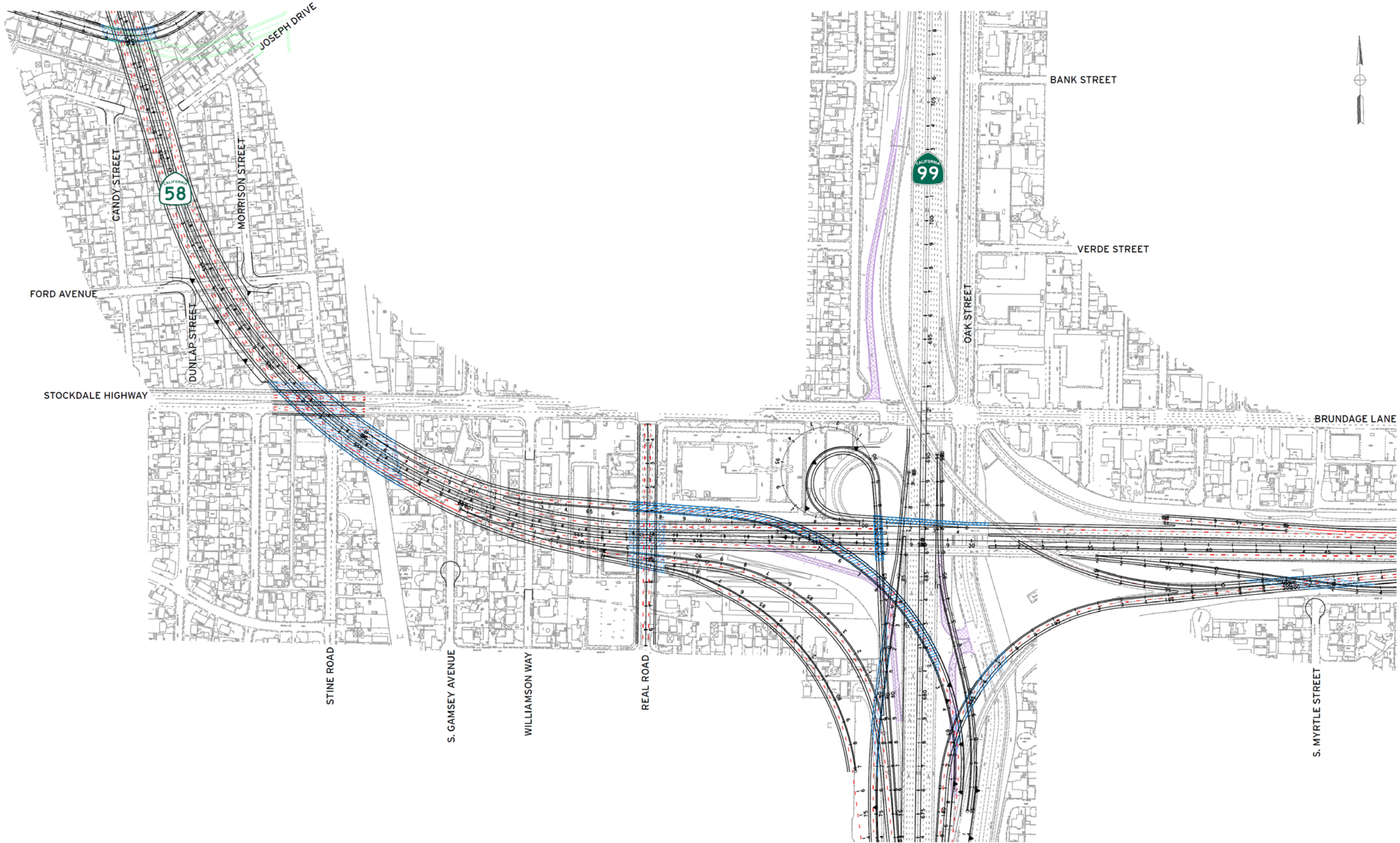


Figure 4-10: Alternative B Proposed Alignment  
Sheet 1 of 8

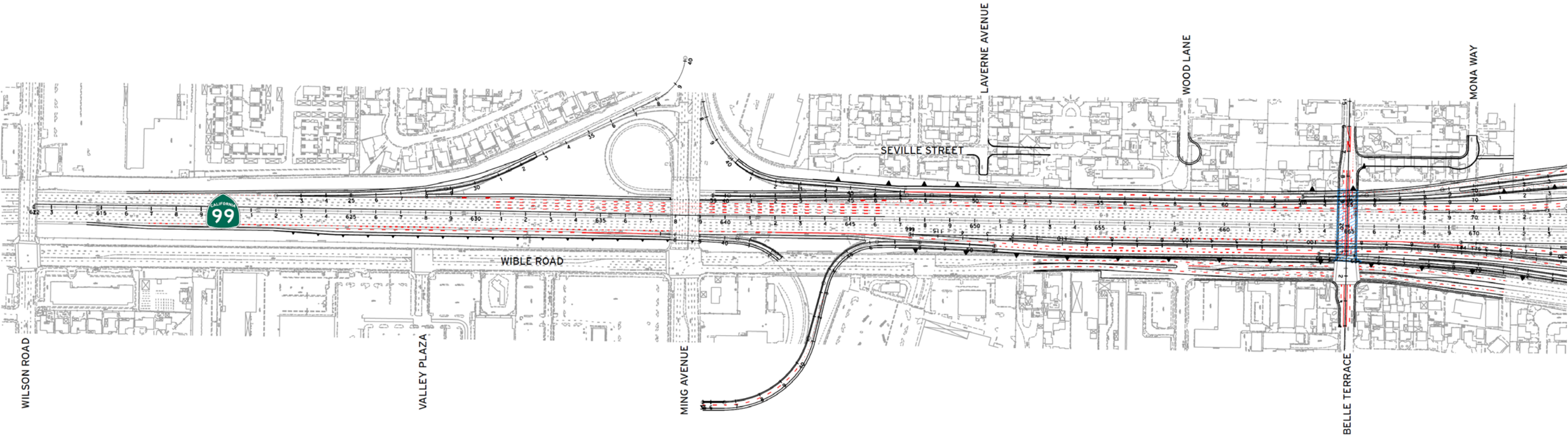


Figure 4-10: Alternative B Proposed Alignment  
Sheet 2 of 8

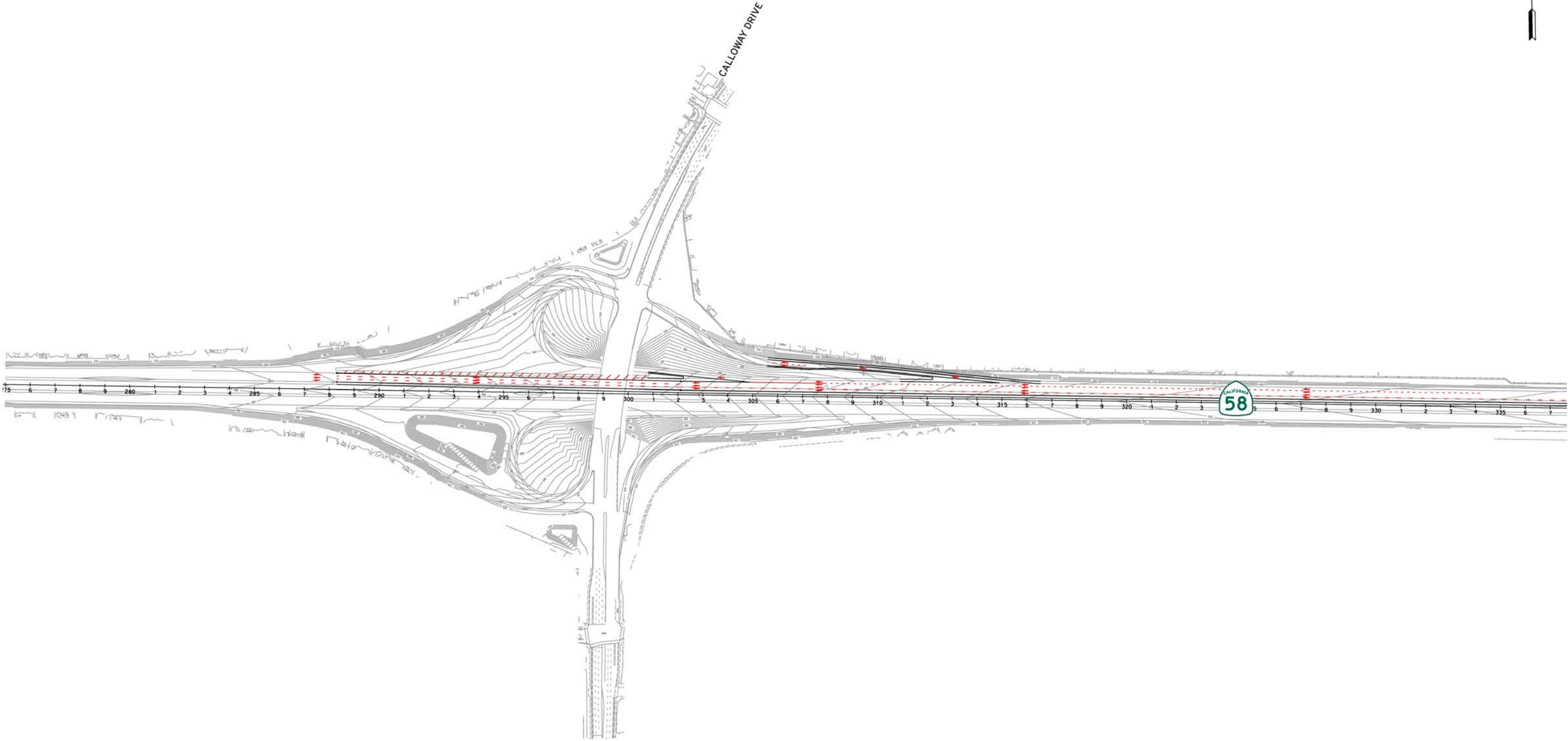


Figure 4-10: Alternative B Proposed Alignment  
Sheet 3 of 8

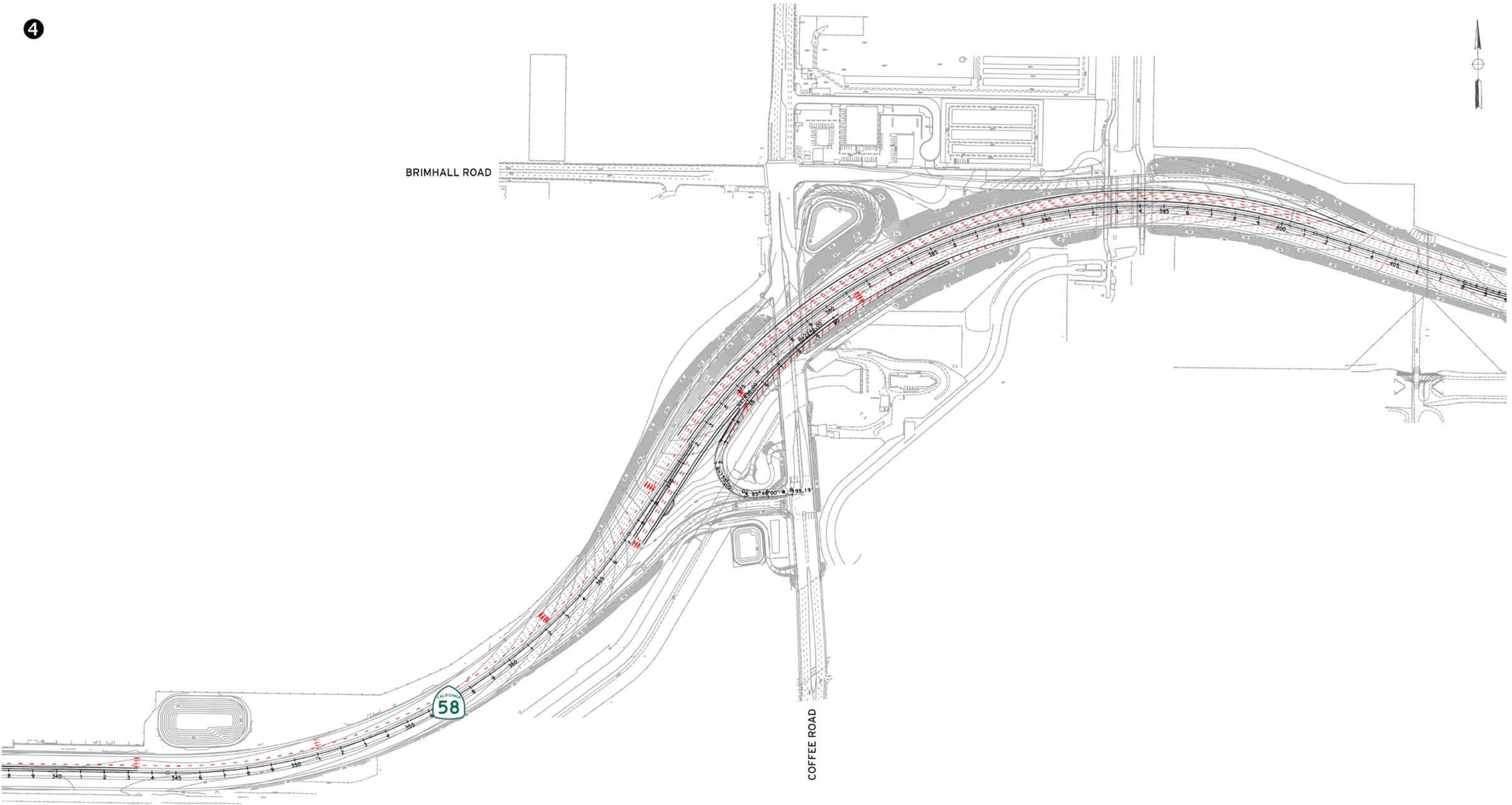


Figure 4-10: Alternative B Proposed Alignment  
Sheet 4 of 8

5

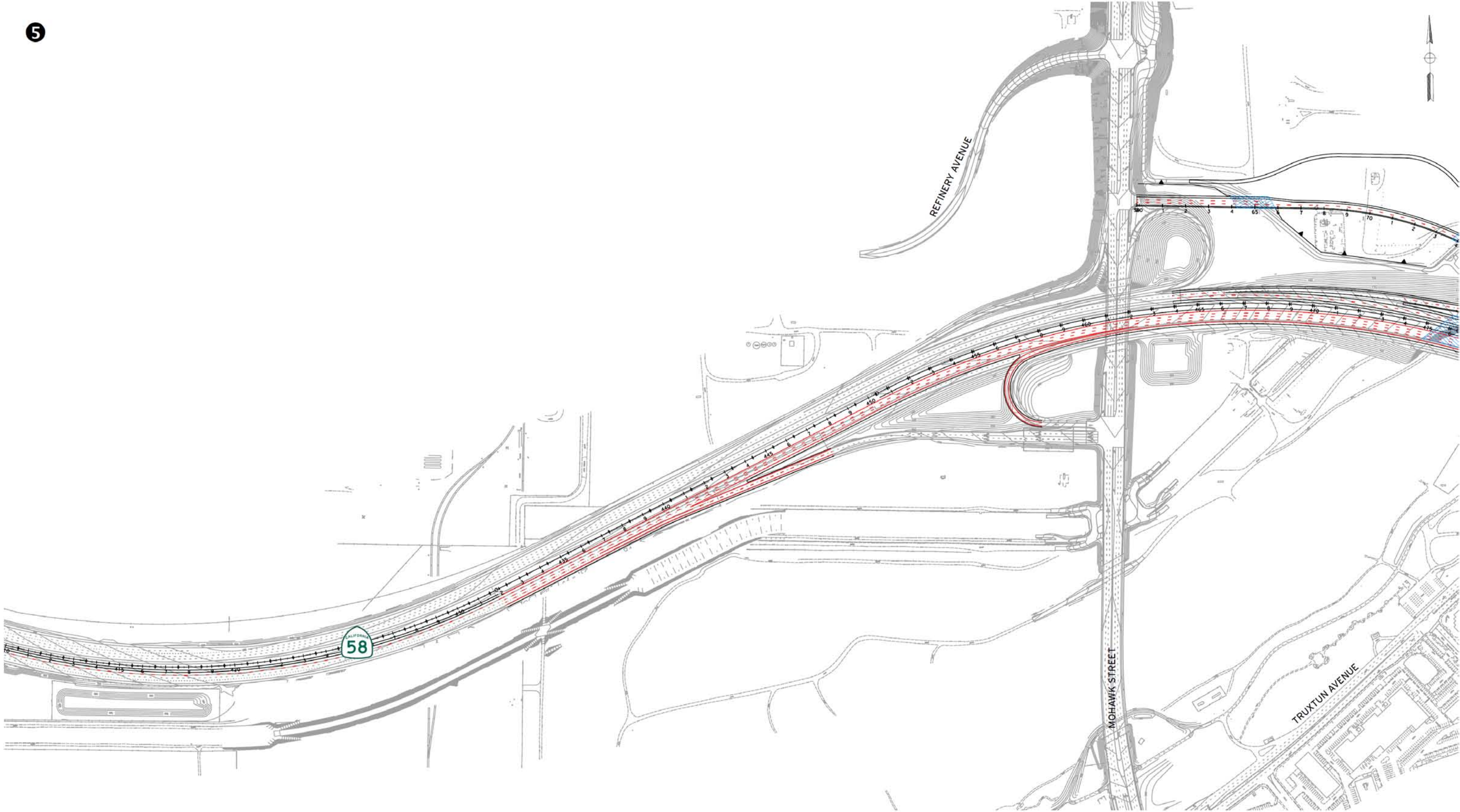


Figure 4-10: Alternative B Proposed Alignment  
Sheet 5 of 8

6

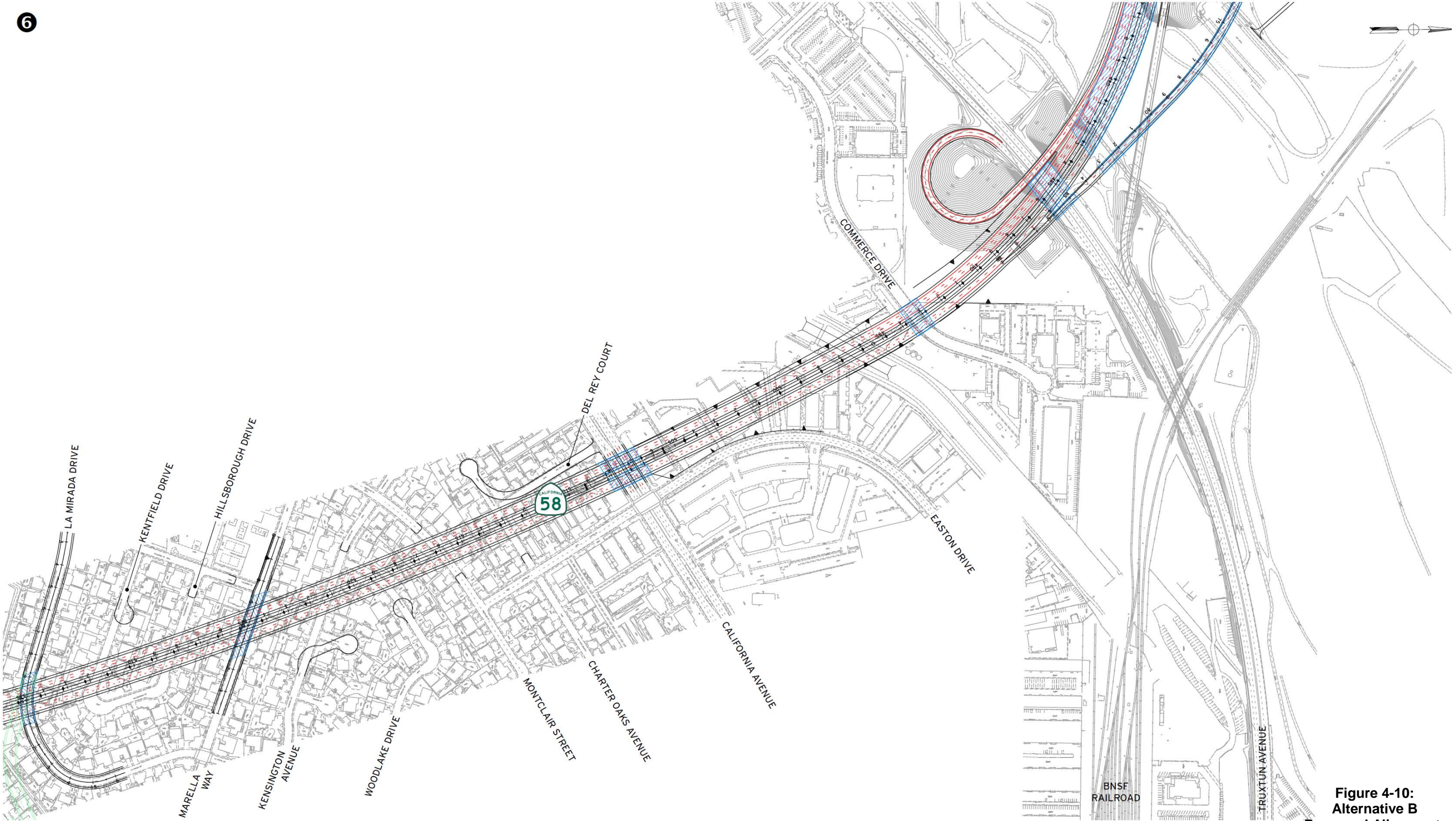


Figure 4-10:  
Alternative B  
Proposed Alignment  
Sheet 6 of 8

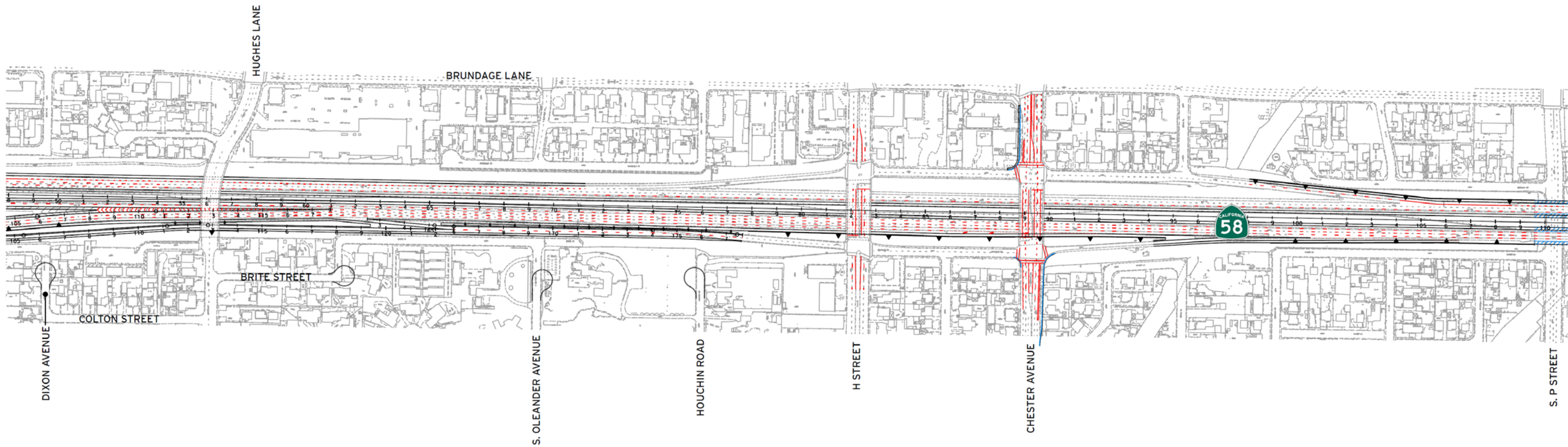


Figure 4-10: Alternative B Proposed Alignment  
Sheet 7 of 8

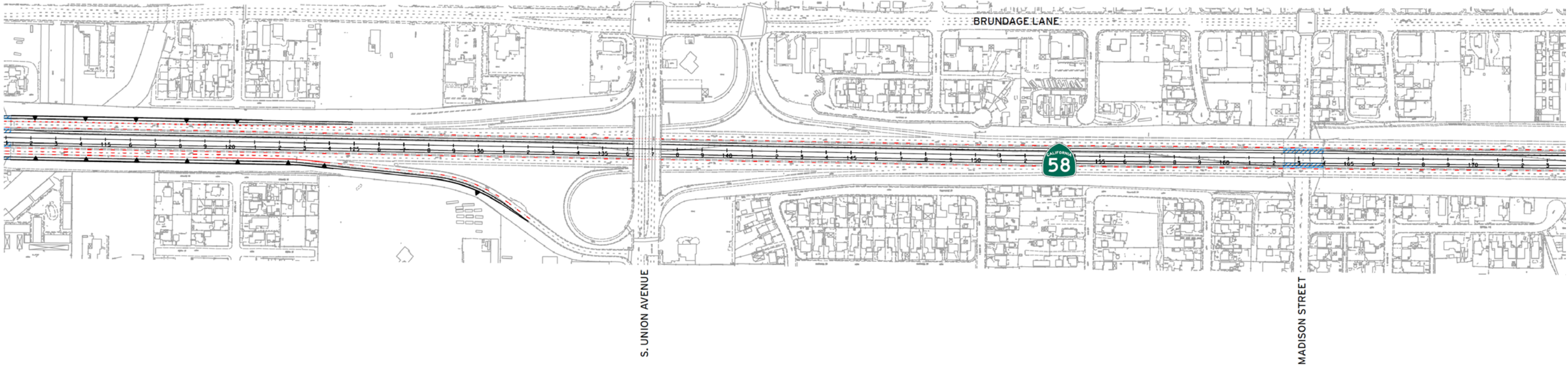
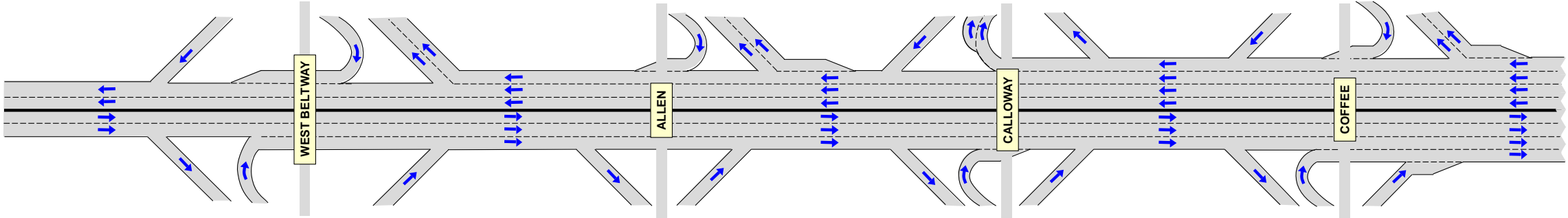


Figure 4-10: Alternative B Proposed Alignment  
Sheet 8 of 8

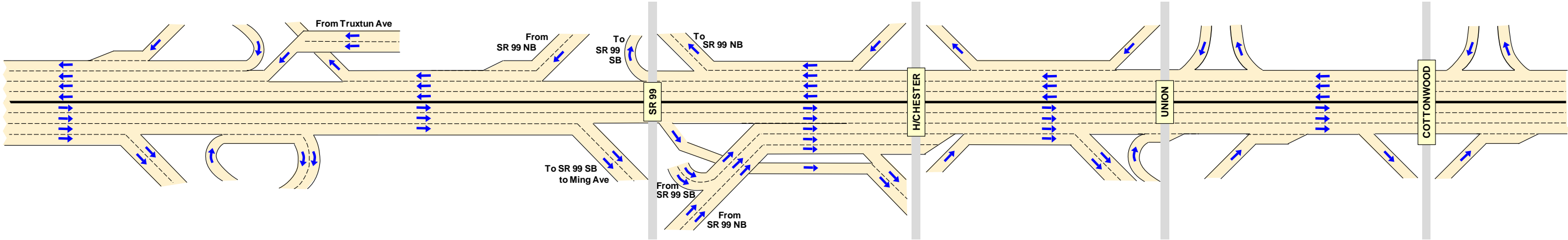
A. State Route 58 and Westside Parkway

| State Route 58 Westbound |         | MAINLINE | WEST BELTWAY |          |       |          |        | MAINLINE | ALLEN ROAD |          |        | MAINLINE | CALLOWAY DRIVE |          |        |          |       | MAINLINE | COFFEE ROAD |          |       |          |        | MAINLINE |
|--------------------------|---------|----------|--------------|----------|-------|----------|--------|----------|------------|----------|--------|----------|----------------|----------|--------|----------|-------|----------|-------------|----------|-------|----------|--------|----------|
|                          |         |          | ON           | MAINLINE | ON    | MAINLINE | OFF    |          | ON         | MAINLINE | OFF    |          | ON             | MAINLINE | OFF    | MAINLINE | OFF   |          | ON          | MAINLINE | ON    | MAINLINE | OFF    |          |
| 2038 ALTERNATIVE B       | AM Peak | 1,674    | 290          | 1,384    | 305   | 1,079    | 1,485  | 2,564    | 380        | 2,184    | 1,125  | 3,309    | 575            | 2,734    | 760    | 3,494    | 600   | 4,094    | 325         | 3,769    | 160   | 3,609    | 2,175  | 5,784    |
|                          | PM Peak | 2,320    | 360          | 1,960    | 450   | 1,510    | 2,190  | 3,700    | 435        | 3,265    | 2,125  | 5,390    | 1,015          | 4,375    | 1,245  | 5,620    | 925   | 6,545    | 575         | 5,970    | 280   | 5,690    | 2,030  | 7,720    |
|                          | ADT     | 28,518   | 6,050        | 22,468   | 5,920 | 16,548   | 24,720 | 41,268   | 3,650      | 37,618   | 24,777 | 62,395   | 10,255         | 52,140   | 14,800 | 66,940   | 9,725 | 76,665   | 5,695       | 70,970   | 2,965 | 68,005   | 29,395 | 97,400   |



| State Route 58 Eastbound |         | MAINLINE | WEST BELTWAY |          |        |          |       | MAINLINE | ALLEN ROAD |          |        | MAINLINE | CALLOWAY DRIVE |          |        |          |        | MAINLINE | COFFEE ROAD |          |        |          |        | MAINLINE |
|--------------------------|---------|----------|--------------|----------|--------|----------|-------|----------|------------|----------|--------|----------|----------------|----------|--------|----------|--------|----------|-------------|----------|--------|----------|--------|----------|
|                          |         |          | OFF          | MAINLINE | ON     | MAINLINE | ON    |          | OFF        | MAINLINE | ON     |          | OFF            | MAINLINE | ON     | MAINLINE | ON     |          | OFF         | MAINLINE | ON     | MAINLINE | ON     |          |
| 2038 ALTERNATIVE B       | AM Peak | 2,220    | 725          | 1,495    | 1,495  | 2,990    | 300   | 3,290    | 375        | 2,915    | 1,995  | 4,910    | 950            | 3,960    | 970    | 4,930    | 1,125  | 6,055    | 1,075       | 4,980    | 990    | 5,970    | 1,070  | 7,040    |
|                          | PM Peak | 2,215    | 865          | 1,350    | 1,330  | 2,680    | 265   | 2,945    | 300        | 2,645    | 1,850  | 4,495    | 815            | 3,680    | 1,010  | 4,690    | 1,095  | 5,785    | 875         | 4,910    | 1,050  | 5,960    | 1,115  | 7,075    |
|                          | ADT     | 28,565   | 11,000       | 17,565   | 18,850 | 36,415   | 3,350 | 39,765   | 4,550      | 35,215   | 24,175 | 59,390   | 11,795         | 47,595   | 10,500 | 58,095   | 14,355 | 72,450   | 11,550      | 60,900   | 14,450 | 75,350   | 16,050 | 91,400   |

| MOHAWK STREET/TRUXTUN AVENUE |          |           |          |            |          |            | MAINLINE | STATE ROUTE 99 SYSTEM INTERCHANGE |          |        |          |        | MAINLINE | H ST/CHESTER AVE |          |        | MAINLINE | UNION AVENUE |          |       |          |        | MAINLINE | COTTONWOOD ROAD |          |       | MAINLINE | State Route 58 WB |             |
|------------------------------|----------|-----------|----------|------------|----------|------------|----------|-----------------------------------|----------|--------|----------|--------|----------|------------------|----------|--------|----------|--------------|----------|-------|----------|--------|----------|-----------------|----------|-------|----------|-------------------|-------------|
| MOHAWK ON                    | MAINLINE | MOHAWK ON | MAINLINE | TRUXTUN ON | MAINLINE | MOHAWK OFF |          | ON                                | MAINLINE | OFF    | MAINLINE | OFF    |          | ON               | MAINLINE | OFF    |          | ON           | MAINLINE | ON    | MAINLINE | OFF    |          | ON              | MAINLINE | OFF   |          |                   |             |
| 790                          | 4,994    | 655       | 4,339    | 1,020      | 3,319    | 880        | 4,199    | 1,685                             | 2,514    | 1,171  | 3,685    | 1,100  | 4,785    | 700              | 4,085    | 1,095  | 5,180    | 580          | 4,600    | 375   | 4,225    | 1,115  | 5,340    | 325             | 5,015    | 205   | 5,220    | AM Peak           | 2038        |
| 990                          | 6,730    | 1,255     | 5,475    | 1,865      | 3,610    | 745        | 4,355    | 1,745                             | 2,610    | 1,220  | 3,830    | 1,095  | 4,925    | 715              | 4,210    | 1,100  | 5,310    | 750          | 4,560    | 355   | 4,205    | 990    | 5,195    | 520             | 4,675    | 295   | 4,970    | PM Peak           | ALTERNATIVE |
| 11,005                       | 86,395   | 14,625    | 71,770   | 22,085     | 49,685   | 9,815      | 59,500   | 23,940                            | 35,560   | 14,990 | 50,550   | 15,355 | 65,905   | 12,835           | 53,070   | 17,190 | 70,260   | 9,320        | 60,940   | 4,810 | 56,130   | 12,625 | 68,755   | 5,780           | 62,975   | 3,125 | 66,100   | ADT               |             |



| MOHAWK STREET/TRUXTUN AVENUE |           |             |           | MAINLINE | STATE ROUTE 99 SYSTEM INTERCHANGE |          |                 |          |        | MAINLINE | H ST/CHESTER AVE |          |        | MAINLINE | UNION AVENUE |          |       |          |       | MAINLINE | COTTONWOOD ROAD |          |       | MAINLINE | State Route 58 EB |   |         |             |
|------------------------------|-----------|-------------|-----------|----------|-----------------------------------|----------|-----------------|----------|--------|----------|------------------|----------|--------|----------|--------------|----------|-------|----------|-------|----------|-----------------|----------|-------|----------|-------------------|---|---------|-------------|
| MOHAWK OFF                   | MOHAWK ON | TRUXTUN OFF | MOHAWK ON |          | OFF                               | MAINLINE | H ST/TO CHESTER | MAINLINE | ON     |          | OFF              | MAINLINE | ON     |          | OFF          | MAINLINE | ON    | MAINLINE | ON    |          | OFF             | MAINLINE | ON    |          |                   |   |         |             |
| 1,820                        | 515       | 1,600       | 515       | 4,135    | 2,040                             | 2,095    | 333             | 1,762    | 2,165  | 3,927    | 322              | 3,605    | 995    | 4,600    | 1,020        | 3,580    | 325   | 3,905    | 330   | 4,235    | 635             | 3,600    | 315   | 3,915    |                   |   | AM Peak | 2038        |
| 1,650                        | 1,090     | 1,400       | 1,090     | 5,115    | 2,355                             | 2,760    | 367             | 2,393    | 3,070  | 5,463    | 408              | 5,055    | 1,205  | 6,260    | 1,050        | 5,210    | 635   | 5,845    | 565   | 6,410    | 940             | 5,470    | 295   | 5,765    |                   |   | PM Peak | ALTERNATIVE |
| 21,800                       | 9,575     | 17,300      | 9,575     | 61,875   | 20,885                            | 40,990   | 5,653           | 35,937   | 35,020 | 70,957   | 5,947            | 65,010   | 13,830 | 78,840   | 16,020       | 62,820   | 6,095 | 68,915   | 4,685 | 73,600   | 9,230           | 64,370   | 3,055 | 67,425   | ADT               | B |         |             |

Figure 4-11: Alternative B  
Freeway Lane Configuration and  
Forecast Traffic Volumes (1 of 2)

B. State Route 99

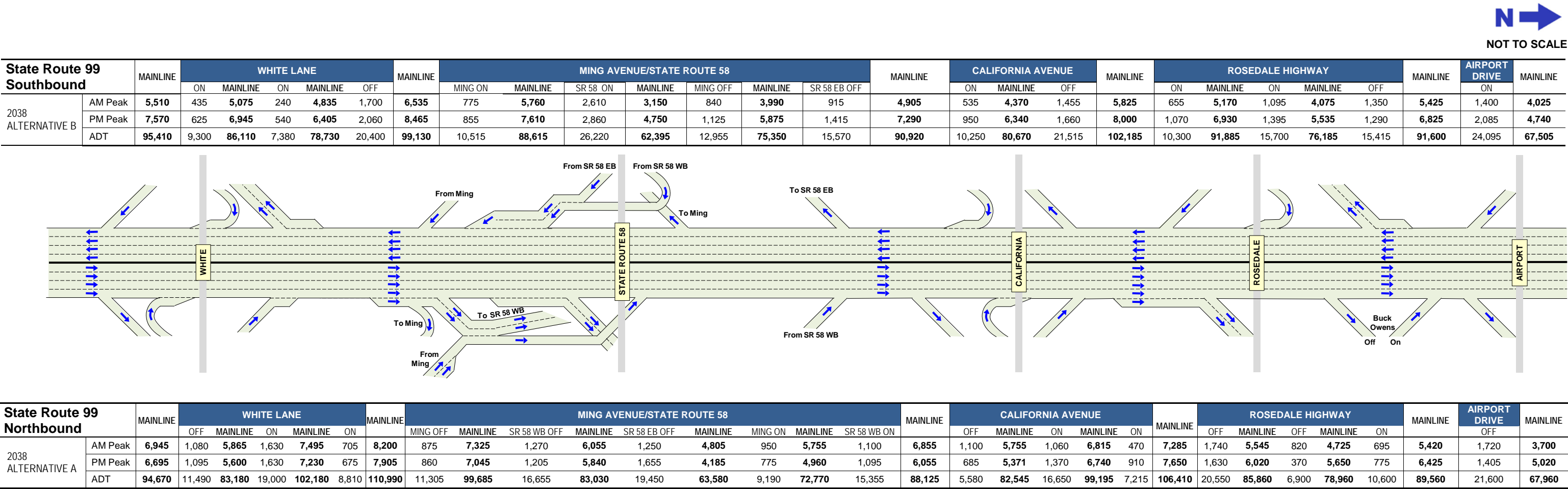


Figure 4-11: Alternative B  
Freeway Lane Configuration and  
Forecast Traffic Volumes (2 of 2)

illustrated in blue indicated roadways receiving less traffic as a result of building the freeway connector. The difference plot was very similar to that provided for alternative A, as the change in mobility and accessibility offered by alternatives A and B is virtually the same.

In a like manner, Figure 4-12 illustrates the location and severity of traffic congestion on the alternative B road network, much the same as identified for alternative A. In other words, very little difference would be expected between alternatives A and B insofar as regional traffic accommodation. Differences would be expected, however, in local, neighborhood circulation patterns.

Similar to the information reported for the no-build and build alternatives, Table 4-22 presents measures of effectiveness performance data for alternative B AM peak hour conditions, while Table 4-23 presents PM peak hour data. Both sets of data are extracted from the CORSIM traffic simulation model output and pertain to freeway mainline segments. Segments expected to operate with LOS E or F performance in the design year of 2038 are highlighted.

Alternative B freeway performance results are similar to those reported earlier for alternative A. With respect to 2038 AM peak hour conditions, Table 4-22 indicates that only one short segment of the freeway system, northbound State Route 99 between the White Lane loop on-ramp and the White Lane diagonal on-ramp, will operate at LOS E. Of the 80 freeway segments analyzed, 63 will operate at LOS C or better, 16 at LOS D, and one at LOS E, as mentioned above. Speeds will range between 55 and 64 mph and nearly all of the demand volumes will be served.

During the PM peak hour, traffic operations will be nearly as good as AM peak hour conditions. Of the 80 freeway segments analyzed, 53 will operate at LOS C or better, 25 segments will operate at LOS D, and three segments will operate at LOS E or LOS F.

- Southbound State Route 99 between the Rosedale Highway loop on-ramp to the diagonal on-ramp (LOS E)
- Southbound State Route 99 between the Rosedale Highway diagonal on-ramp and the California Avenue off-ramp (LOS F)
- Southbound State Route 99 between the Ming Avenue on-ramp and the White Lane off-ramp (LOS F).

The percentage of demand traffic volumes served will fall below 90 percent in one reach of State Route 99.

- Northbound between the California loop on-ramp and the Airport Drive off-ramp (85 to 88 percent served)

Along the Westside Parkway/State Route 58, speeds will range between 57 and 64 mph. Along State Route 99, speeds will range between 51 and 63 mph for the most part.

Motorists will experience slower speeds, below 50 mph, on three segments of southbound State Route 99 during the PM peak hour.

Freeway on-ramp and off-ramp performance and interchange merge/diverge conditions are reported in Tables 4-24 and 4-25, and 4-26 and 4-27, respectively, for AM and PM peak hours. Ramp terminal and other study intersection level of service performance are provided in Table 4-28. The results are similar to those reported for build alternative A.